UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Entomology and Plant Quarantine
Division of Insecticide Investigations

A BIBLIOGRAPHY OF CYANIDE COMPOUNDS USED AS INSECTICIDES, 1934

BY

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INTRODUCTION

This bibliography is the fifth of a series dealing with the insecticidal uses of cyanide compounds. Previous numbers of this series are United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, mimeographed publications E-354, E-368, E-381, and E-493, which cover the literature for 1930, 1931, 1932, and 1933 respectively. It has been prepared by consulting the following abstract periodicals for 1934:

Biological Abstracts
British Chemical Abstracts A
British Chemical Abstracts B
Chemical Abstracts
Experiment Station Record
Review of Applied Entomology Series A
Review of Applied Entomology Series B.

ANONYMOUS (1)

THE HORNET AND METHODS OF COMBATING IT. Palestine Dept. Agr. Vet. Serv. Ser. 7, 6 pp. 1933. [Abstract in Rev. Appl. Ent. 22(A): 13, 1934.]

Vespa orientalis F. is the chief enemy of bees in Palestine. Among the methods of control recommended is fumigation of the nests with calcium cyanide.

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ENTOMOLOGY. Maine Agr. Expt. Sta. Bull. 369: 551-557. 1933. [Abstract in Rev. Appl. Ent. 22(A): 369. 1934.]

In the control of wireworms fumigation of the soil with hydrocyanic acid is reported to be effective in the summer but not in the spring.

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SPECIFICATIONS FOR CERTAIN INSECTICIDES AND FUNGICIDES. [Gr. Britain] Jour. Min. Agr. 41: 225-228. 1934. [Abstract in Rev. Appl. Ent. 22(A): 436. 1934.]

Specifications have been prepared by the Association of British Insecticide Manufacturers, members of which have agreed to conform to the standards here laid down. The specifications include, among a number of others, those for potassium cyanide, sodium cyanide, and calcium cyanide.

ANONYMOUS (4)

INSECT PESTS AND THEIR CONTROL. Agr. Gaz. New South Wales 45: 255-260. 1934. [Abstract in Rev. Appl. Ent. 22(A): 476. 1934.]

In cases of heavy infestation (of citrus) fumigation with hydrocyanic acid may be necessary.

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INSECT PESTS AND THEIR CONTROL. Agr. Gaz. New South Wales 45:383-387. 1934. [Abstract in Rev. Appl. Ent. 22(A):622. 1934.]

The use of a sodium arsenite bait and fumigation with carbon disulfide, potassium cyanide, or calcium cyanide dust are recommended against ants.

ACHARD, C., and BINET, L. (6)

THE EFFECTS OF SODIUM HYPOSULFITE ON INTOXICATION BY POTASSIUM CYANIDE. Compt. Rend. Acad. Sci. [Paris] 198: 222-224. 1934. [In French. Abstract in Chem. Abs. 28: 2406. 1934.]

Sodium hyposulfite prevents, and has some curative action on, intoxication of carp (Cyprinus carpio L.) by potassium cyanide.

ACHARYA, C. N. (7)

INVESTIGATIONS ON THE DEVELOPMENT OF PRUSSIC ACID IN CHOLAM (SORGHUM VULGARE). Indian Jour. Agr. Sci. 3: 531-560. 1933. [Abstract in Chem. Abs. 28: 1379. 1934.]

The hydrocyanic acid content of a normal crop of cholam decreases progressively from 0.2 or 0.3 percent at the early stages of growth until it reaches the flowering stage, when it can be considered harmless. The leaves contain about 60 percent of the cyanogen compounds present in the plant, and contain a higher percentage on a dry basis than do the stems and roots. The total hydrocyanic acid content of a plant and the percentage on the dry matter are lowest in the morning, then increase up to about 2 p. m., after which there is a slight decrease till 6 p. m. followed by a rapid decrease in the night. Young seedlings (less than 40 days old) and plants stunted by drought, ratoons, and secondary shoots contain the highest percentage of hydrocyanic acid.

A method for determining the hydrocyanic acid content of cholam is described. Thirty two references are given.

ADAMOVICH, L., and AVRASIN, YA. (8)

THE FORMATION OF CYANIDES IN THE BLAST FURNACE PROCESS. Stal 3 (9): 62-73. 1933. [In Russian. Abstract in Chem. Abs. 28: 3037. 1934.]

The cyanide content in the outgoing gases is increased by increasing the coke ratio, temperature, and pressure, and by decreasing the oxygen content and maintaining a basic slag. The presence of chlorine decreases cyanide formation.

ADEL, A., and BARKER, E. F. (9)

VIBRATIONAL ENERGY LEVELS OF HYDROGEN CYANIDE. Nature 133: 29. 1934. [Abstract in Chem. Abs. 28: 1925. 1934.]

Data are given concerning infrared bands observed in hydrogen cyanide vapor.

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THE VIBRATIONAL ENERGY LEVEL SYSTEM OF THE LINEAR MOLECULE HCN. Phys. Rev. 45: 277-279. 1934. [Abstract in Chem. Abs. 28: 2997. 1934.]

New measurements of the absorption spectrum of hydrogen cyanide are given and the frequencies for deuterium cyanide are predicted.

AHLBERG, O., and PALMGARD, A. (11)

INVESTIGATION ON THE PRACTICABILITY OF HYDROCYANIC ACID AS A MEANS OF CONTROLLING INSECT PESTS IN GREENHOUSES. Medd. Växtskyddsanst. No. 8, 18 pp. Stockholm. 1934. [In Swedish. Abstract in Rev. Appl. Ent. 22(A): 669. 1934.]

Tests to determine the effectiveness for greenhouse fumigation of hydrocyanic acid generated from cyanogas dust (which contains 40 percent of calcium cyanide) were carried out in Stockholm during 1931-33. The rates at which this fumigant can be applied at temperatures of 12-22° C. and humidities of 50-75 percent without injury are shown in relation to over 200 greenhouse plants. In tests with insects satisfactory control of Thysanoptera and aphids was obtained with 6-hour exposures to weak concentrations (3-3 1/2 oz. cyanogas to 10,000 cu. ft.) but three to four treatments with high concentrations and long exposures were necessary to kill fully developed mealybugs. Fumigation with 6 oz. to 1,000 cu. ft. for 17 hours in an air-tight chamber killed only 2 to 3 percent of Tetranychus telarius (L.) althaea v. Hanst., the highest dosages supported by the hardiest greenhouse plants being 1-1/2-2 oz. to 1,000 cu. ft. Larvae of Gracilaria azaleella Brants on

azalea were not affected by fumigation for 10 hours at 7 oz. per 10,000 cu. ft., and similar negative results were obtained against Phytomyza atricornis Mg. on chrysanthemum, 5 oz. being considered the rate safe for chrysanthemum and azalea. The cost of various proprietary preparations embodying hydrocyanic acid is discussed and compared with that of other materials used in the control of greenhouse insects.

ANDRUSSOW, LEONID (12)

HYDROCYANIC ACID. United States Patent 1,934,838, issued Nov. 14, 1933; applied for Apr. 6, 1931; in Germany, Apr. 14, 1930; assigned to I. G. Farbenind. A.-G. [Abstract in Chem. Abs. 28: 584. 1934.]

For the production of hydrocyanic acid a gaseous mixture containing ammonia, a vaporous or gaseous hydrocarbon material such as methane, etc., and sufficient oxygen to make the reaction exothermic (but less than would cause complete combustion) is contacted with a hot oxidation catalyst such as platinum containing rhodium (suitably at 900-1000°).

-------- and HUBERICH, KARL (13)

HYDROCYANIC ACID. United States Patent 1,957,749, issued May 8, 1934; applied for Dec. 14, 1931; in Germany, Dec. 19, 1930. Assigned to I. G. Farbenind, A.-G. [Abstract in Chem. Abs. 28: 4185. 1934.]

The production of hydrocyanic acid by the interaction of ammonia, hydrocarbon material such as natural gas, and a gas comprising free oxygen such as air at a temperature of 750-1250° and in the presence of a catalyst such as platinum and rhodium is claimed. Some details of apparatus are given.

ASKEW, H. O. (14)

DETERMINATION OF HYDROCYANIC ACID IN WHITE CLOVER. New Zeal. Jour. Sci. Technol. 15: 227-233. 1933. [Abstract in Chem. Abs. 28: 2033. 1934.]

Digestion of water for 24 hours at ordinary temperatures or heating to 45° for 4 hours give the highest titration figures for hydrocyanic acid. Distillation of the digested mash was carried out in the presence of a large quantity of water (1 liter for 50 g. sample) to avoid formation of undesirable compounds. Cool storage of the samples up to 6 days did not decrease the yield. The hydrocyanic acid content varies seasonally and is greater for the leaf than for the stem.

BÄHR, G. (15)

THE RELATION BETWEEN ISOSTERISM AND CHEMICAL CHARACTER IN THE CASE OF ACETYLENE AND HYDROCYANIC ACID AND THEIR DERIVATIVES. Ztschr. Phys. Chem. (A) 168: 363-369. 1934. [In German. Abstract in Chem. Abs. 28: 5725. 1934.]

BALLARD, E. (16)

REPORT OF THE ENTOMOLOGICAL SERVICE. Palestine Dept. Agr. and Forests, Rept. 1931-32. 239 pp. Jerusalem. 1933. [Abstract in Rev. Appl. Ent. 22(A): 234. 1934.]

The author states that 42,503 citrus trees in the Jaffa District were fumigated with calcium cyanide in 1931. The number of infested trees was reduced by 44 percent.

BALTHAZARD AND MELISSINOS (17)

CARBON MONOXIDE POISONING: VALUE OF THE INTOXICATION COEFFICIENT. Ann. Med. Legale Criminol. Police Sci. 14: 1-13. 1934. [In French. Abstract in Chem. Abs. 28: 2412. 1934.]

The higher the carbon monoxide content of the atmosphere the shorter the time for complete asphyxiation and the higher the intoxication coefficient. The toxicity of other gases which may be present with the carbon monoxide, is not likely to have any action, as carbon monoxide acts much more rapidly than any of the others (except hydrocyanic acid which is not likely to be present with carbon monoxide.

BARNES, D. F., and FISHER, C. K. (18)

STIMULATION OF FIG INSECTS BY CERTAIN FUMIGANTS. Jour. Econ. Ent. 27:860. 1934. [Abstract in Chem. Abs. 28: 7409. 1934.]

In this study, stimulation refers to the percentage of insects the fumigants caused to leave the dried figs before death occurred. Nearly all dosages were eventually 100 percent lethal. Against adults and larvae of the beetle Carpophilus hemipterus and adults of the moth Ephestia figulilella the stimulating effect of the four compounds used was: chloropicrin>ethylene dichloride-carbon tetrachloride mixture>carbon disulphide>calcium cyanide. The beetle larvae and adults responded to the stimulation to a greater degree than the moth larvae.

BARTLING, F. (19)

SODIUM CYANIDE PRODUCTION. United States Patent 1,957,129, issued May 1, 1934; applied for Mar. 24, 1931; in Germany, Apr. 14, 1930. assigned to Alterum Kredit-A.-G. [Abstract in Chem. Abs. 28: 4187. 1934.]

In making briquettes of loose porous structure for cyanide production, a mixture of coke and sodium bicarbonate is pressed into crude briquettes and these are preheated with exclusion of air to about 300-400° to effect calcining and liberation of gas from sodium bicarbonate.

BARTON, N. V., CHAPMAN, J., and ASSOCIATED FUMIGATORS, LTD. (20)

FUMIGANT. British Patent 407,792, issued Mar. 29, 1934; applied for Dec. 13, 1932. [Abstract in Chem. Abs. 28: 5193. 1934.]

A hydrocyanic acid fumigant comprises an inherently acidified cellulosic medium as the vehicle or carrier. The material is packed into sheet metal boxes, the hydrocyanic acid added, the bisulfite and sulphurous acid in the cakes acting as stabilizers.

BAUMANN, E. J., SPRINSON, D. B., and METZGER, N. (21)

THE RELATION OF THYROID TO THE CONVERSION OF CYANIDES TO THIOCYANATE. Jour. Biol. Chem. 102: 773-782. 1933. [Abstract in Chem. Abs. 28: 1096. 1934.]

After injection of potassium thiocyanate into rabbits about 90 percent of it was recovered in the urine within 5 days. Similarly, of injection of potassium cyanide or benzonitrile, 80 percent was recovered as potassium thiocyanate in the urine, and thyroidectomy did not reduce the potassium thiocyanate excretion. However, injection of acetonitrile was followed by partial excretion of potassium thiocyanate by normal rabbits and no excretion by thyroidectomized animals. Hence the thyroid has no effect on cyanide metabolism, but does control demethylation of acetonitrile, a reaction similar to that observed by Stuber et al. (Chem. Abs. 18: 2199).

BELLIO, G. (22)

DOSAGE TABLES IN THE FUMIGATION OF CITRUS TREES WITH HYDROCYANIC ACID GAS. Ann. Ist., Sup. Agr. Portici (3) 6 (1933): 154-252. 1934. [In Italian. Abstract in Rev. Appl. Ent. 22(A): 492. 1934.]

The author surveys the problems presented by tent fumigation of citrus trees with hydrocyanic acid and discusses the history and technique of the principal methods employed in various countries and the published dosage tables, which are here reproduced. He gives a revised table, constructed on the basis of the above data and of practical experiment, that is applicable to the fumigation of individual trees infested by Chrysomphalus dictyospermi Morg. in Italy, the gas being generated from sodium cyanide by means of dilute sulfuric acid. One hundred and seven references.

BELLIS, C. J. (23)

EFFECT OF CYANIDE ON PRIMARY MUSCLE TYPES. Jour. Pharmacol. 50: 21-27. 1934. [Abstract in Chem. Abs. 28: 2413. 1934.]

After cyanide administration, frog skeletal muscle showed little change in the contraction curve other than a slight lengthening of contraction phase; rectal muscles showed less relaxation, with shortening of latent and contraction periods; equivalent doses killed the frog heart but stimulated the turtle heart; the rabbit heart was first stimulated, then slowed, temporary revival being produced by glutathione or adrenaline, and finally stopped in extreme rigor.

BENLLOCH, M., and DEL CANIZO, J. (24)

THE FUMIGATION OF OLIVE TREES WITH CALCIUM CYANIDE AGAINST L. OLEAE. Bol. Pat. Veg. Ent. Agr. 7: 54-59. 1934. [In Spanish. Abstract in Rev. Appl. Ent. 22(A): 307. 1934.]

Olive trees in Spain were fumigated under tents with "Cyanogas" (40-50 percent) calcium cyanide), and "Calcid" (82.49 percent calcium cyanide).

BERAN, F. (25)

INFLUENCE OF GASSING WITH HYDROCYANIC ACID OF FRUIT. Ztschr. Untersuch. Lebensmtl. 66: 317-321. 1933. [In German. Abstract in Chem. Abs. 28: 1417. 1934.]

Various types of apples and pears were gassed with Zyklon-B and pure hydrocyanic acid. The hydrocyanic acid content of the gassed fruit was determined, and the influence of various lengths of gassing was observed for cyanide retention.

BERTREM, J. G. (26)

PRELIMINARY EXPERIMENTS WITH HYDROCYANIC ACID GAS AGAINST MEALY BUGS AND TWIG-BORERS. Arch. Koffiecult. Ned.-Ind. 7 (2): 84-103. 1933. [In Dutch, with a summary in English. Abstract in Rev. Appl. Ent. 22(A): 167. 1934.]

Experiments in the tent fumigation of coffee bushes are discussed. A dust containing 40-50 percent calcium cyanide, spread on the ground by means of a hand duster at the rate of 2.7 oz. per 100 cu. ft., killed over 90 percent of Pseudococcus citri Risso and Ferreseana virgata Ckll. without harming the plants in daylight fumigation. A dosage of 4 oz. did not kill more mealybugs but was sufficient for the purpose. Coccus (Lecanium) viridis Green, was completely eradicated. Fumigation proved useless against the twig borer, very little success being obtained even at the rate of 8 oz. in closed glass cases.

BEWLEY, W. F. (27)

TOMATOES: CULTIVATION, DISEASES, AND PESTS. Bull. Min. Agr. Fish. [London] 77, v+71 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 630. 1934.]

This bulletin includes directions for fumigating with sodium cyanide. The tolerance of the plant is given as 1/4 oz. per 1,000 cu. ft. and the necessary dosage 1/5 - 1/4 oz. per 1,000 cu. ft.

BLANCHARD, R. A. (28)

CONTROL OF APHIDS ON ALFALFA IN THE ANTELOPE VALLEY, CALIFORNIA. U. S. Dept. Agr. Circ. 307, 6 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 219. 1934.]

The seasonal history of Macrosiphum onobrychis Boy. (Illinoia pisi Kalt.) is discussed. The control measures recommended include the application of granular calcium cyanide at 22-25 pounds per acre.

BLANK, E. W. (29)

MICRODETECTION OF GASES AND VAPORS. Jour. Chem. Ed. 11: 523-525. 1934. [Abstract in Chem. Abs. 28: 6392. 1934.]

A simple apparatus is shown and described which is suitable for detecting carbon dioxide, hydrocyanic acid, fluorine, ammonia, hydrogen sulfide, sulfur dioxide, arsine, stibine, phosphine, and iodine. Details are given for making the apparatus and for testing.

BOBEST, BELA (30)

ABSORPTION AND RECOVERY OF HYDROCYANIC ACID. Hungarian Patent 107,883, issued Jan. 2, 1934; applied for July 11, 1932. [In Hungarian. Abstract in Chem. Abs. 28: 2473. 1934.]

Hydrocyanic acid is absorbed by a mixture or suspension of alkali and alkali earth, or heavy metals. The cyanides formed are leached out with water and hydrocyanic acid is regenerated.

BODENHEIMER, F. S. (31)

SPRAYING VERSUS FUMIGATION IN RED SCALE CONTROL. Hadar, 6: 285-286. 1933. [Abstract in Expt. Sta. Rec. 71: 222. 1934.]

The author concludes that in controlling the California red scale both spraying and fumigation are necessary, and that the introduction of liquid hydrocyanic acid is an important step in the progress of the citrus industry of Palestine.

BODINE, J. H. (32)

THE EFFECT OF CYANIDE ON THE OXYGEN CONSUMPTION OF NORMAL AND BLOCKED EMBRYONIC CELLS. (ORTHOPTERA.) Jour. Cellular Comp. Physiol. 4: 397-404. 1934. [Abstract in Chem. Abs. 28: 5540. 1934.]

Developing eggs of Melanoplus differentialis are markedly cyanide-sensitive, small doses preventing all but the cyanide-insensitive portion of the respiration. Diapoase or blocked eggs, having an oxygen consumption representing the cyanide-insensitive respiration, are practically completely resistant to cyanide.

BOND, H. A. (33)

VAPORIZING FORMAMIDE. United States Patent 1,950,875, issued March 13, 1934; applied for July 9, 1939; assigned to E. I. du Pont de Nemours & Co. [Abstract in Chem. Abs. 28: 3534. 1934.]

A process for vaporizing formamide in the manufacture of hydrocyanic acid is claimed.

BONNET, R. (34)

NEURO-MUSCULAR ACTION OF AMIDES AND CYANIDES. Compt. Rend. Acad. Aci. [Paris] 198: 1880. 1934. [In French. Abstract in Brit. Chem. Abs. 1934(A): 925. 1934.]

Acetamide and urea at a concentration of 0.093 g. nitrogen per 100 cc. are not toxic to nerve or muscle. At a concentration of 0.7 g. per 100 cc. they poison muscle only. At a much lower concentration (1/2 and 1/8 respectively) hydrocyanic acid and potassium cyanide poison both nerve and muscle. Urea thus behaves as an amide and not as a cyanide.

BORCHARDT, H., and PRINGSHEIM, H. (35)

THE ACTIVATION OF PANCREATIC AMYLASE BY GLUTATHIONE. Biochem. Ztschr. 259: 134-137. 1933. [In German. Abstract in Biol. Abs. 8: 2179. 1934.]

Pancreatic amylase was activated by potassium cyanide or glutathione. Copper poisoning was inhibited by potassium cyanide.

BOURNE, A. I., and WHITCOMB, W. D. (36)

DEPARTMENT OF ENTOMOLOGY. Mass. Agr. Expt. Sta. Bull. 305 (Ann. Rept. 1933): 28-36. 1934. [Abstract in Rev. Appl. Ent. 22(A): 473. 1934.]

Dormant treatment of gladiolus corms with hydrocyanic acid or naphthalene prevented serious development of thrips until late in the season.

BRENDER A' BRANDIS, G. A., and KEEMAN, W. (37)

THE HARMFUL EFFECT OF AMMONIA LIQUOR AND STILL WASTE OF COKE PLANTS ON THE FISH IN PUBLIC WATERS. Het Gas 54: 2-13. 1934. [In Dutch. Abstract in Chem. Abs. 28: 2819. 1934.]

Data are given on the toxicity of a number of compounds, including hydrocyanic acid, for fish. An extensive reference list is given.

BRINER, E., and WAKKER, C. H. (38)

FIXATION OF NITROGEN AS OXIDES OF NITROGEN OR AS HYDROCYANIC ACID. British Patent 400,431, issued Oct. 26, 1933; applied for Nov. 21, 1932. [Abstract in Chem. Abs. 28: 2136. 1934.]

BRINLEY, F. J. (39)

THE EFFECT OF CYANIDES ON THE PLASMA MEMBRANE. Mich. Acad. Sci. Arts and Letters, Paper 13: 241-248. 1931. [Abstract in Biol. Abs. 8: 392. 1934.]

BRITTON, H. T. S., and DODD, E. N. (40)

ELECTROMETRIC STUDIES OF THE PRECIPITATION OF HYDROXIDES, XII. REACTION OF SODIUM HYDROXIDE ON PLATINIC CHLORIDE IN SOLUTION. REACTION OF POTASSIUM CYANIDE ON PLATINIC CHLORIDE. Jour. Chem. Soc. [London] 1933: 1429-1431. [Abstract in Brit. Chem. Abs. 1934(A): 44. 1934.]

Aqueous platinic chloride reacts with potassium cyanide liberating hydrocyanic acid by virtue of the acid formed by hydrolysis. The platinic oxychloride is not decomposed by excess potassium cyanide and no platinic cyanide is formed.

BRUMMER, E., and CSORDÁS, I. (41)

ABSORPTION OF HYDROCYANIC ACID. Hungarian Patent 107,582, issued Dec. 1, 1933; applied for June 21, 1932. [In Hungarian. Abstract in Chem. Abs. 28: 2473. 1934.]

An aqueous or alkaline solution is sprayed into the space containing gaseous hydrocyanic acid. The solution may contain a substance that binds hydrocyanic acid to form a solid compound. The liquid is collected and the solid compound containing the hydrocyanic acid is filtered off.

BRUNS, B., and MAKSIMOVA, M. (42)

THE ADSORPTION CAPACITY OF OXIDIZED CHARCOAL. Jour. Phys. Chem. [U.S.S.R.] 4: 554-561. 1933. [In Russian. Abstract in Chem. Abs. 28: 5308. 1934.]

The adsorption of a number of substances including hydrocyanic acid from a gaseous state on pure charcoal and charcoal oxidized by the method of Kruyt shows the distinctly acid character of the oxidized film. Molecules from basic groups are adsorbed more strongly by oxidized than by unoxidized charcoal.

BRUYLANTS, P., and MERCKX, R. (43)

REFRACTOMETRIC CONSTANT OF THE CN GROUP. Bull. Acad. Roy. Belg. 19: 1003-1016. 1933. [In French. Abstract in Brit. Chem. Abs. 1934(A): 132. 1934.]

BUCHANAN, G. H., and WINNER, G. B. (44)

HYDROCYANIC ACID. United States Patent 1,967,051, issued July 17, 1934; applied for Mar. 25, 1924. Assigned to American Cyanamid Co. [Abstract in Chem. Abs. 28: 5937. 1934.]

A crude material containing a cyanide which is unstable in aqueous solution is treated with water vapor under subatmospheric pressure to form hydrocyanic acid. Apparatus is described.

BULGER, J. W. (45)

ADDITION TO OUR KNOWLEDGE OF THE TOXICITY OF STOMACH POISONS TO INSECTS. Jour. Econ. Ent. 25: 261-268. 1932. [Abstract in Biol. Abs. 8: 469. 1934.]

The sandwich method was used to study the toxicity of a number of poisons including cuprous cyanide.

BUZZO, A., and CARRATALA, R. E. (46)

THE COMBINATION OF AMYL NITRITE WITH SODIUM THIOSULPHATE IN THE TREATMENT OF POTASSIUM CYANIDE POISONING. Semana Med. [Buenos Aires] 2: 1772-1775. 1933. [In Spanish. Abstract in Chem. Abs. 28: 1775. 1934.]

Inhalation of amyl nitrite combined with intravenous injection of sodium thiosulfate gives an effective treatment in potassium cyanide poisoning. The former causes the formation of methemoglobin which gives a stable compound with cyanide and facilititates the action of sodium thiosulfate. The sodium nitrite is still more effective. Amyl nitrite has the advantage of easy application.

CALIFANO, L. (47)

THE NATURE OF THE MELANOGENIC ENZYME. Sperimentale 88: 11-26. 1934. [In Italian. Abstract in Chem. Abs. 28: 5482. 1934.]

The enzyme is destroyed by hydrocyanic acid.

CAMUS, L., BENARD, H., and MERKLEN, F. P. (48)

ACTION OF POTASSIUM CYANIDE ON THE RESPIRATION OF THE DOG WITH REFERENCE TO THE RESPIRATORY NERVE CENTRES AND THE REFLEX ZONES OF THE CAROTID SINUS. Compt. Rend. Soc. Biol. 115: 614-618. 1934. [In French. Abstract in Chem. Abs. 28: 2789. 1934.]

CARLISLE, P. J., and DANGELMAJER, C. (49)

CALCIUM CYANIDE. United States Patent 1,950,879, issued Mar. 13, 1934; applied for Oct. 15, 1928; assigned to E. I. du Pont de Nemours & Co. [Abstract in Chem. Abs. 28: 3537. 1934.]

A pulverulent hydrated calcium cyanide product is prepared by suspending powdered unslaked lime in ethyl ether, adding liquid hydrocyanic acid to the suspension, effecting reaction by adding water in accelerating quantity, and then separating the pulverulent product from the associated liquid.

CARO, N., and FRANK, A. R. (50)

ALKALINE EARTH CYANIDES. German Patent 588,943, issued Nov. 30, 1933; applied for Mar. 27, 1928. [In German. Abstract in Chem. Abs. 28: 2133. 1934.]

Alkaline earth carbide is treated with nitrogen and the fused or plastic product is rapidly cooled to 400-500° to prevent formation of cyanamides. Thus calcium carbide is heated and treated with nitrogen to give calcium cyanide.

CHAPLIN, R. (51)

THE ADSORPTION OF CARBON DIOXIDE BY ACTIVATED CHARCOALS IN THE PRESENCE OF CARBON TETRACHLORIDE AND HYDROGEN CYANIDE. Trans. Faraday Soc., 30: 249-260. 1934. [Abstract in Chem. Abs. 28: 2241. 1934.]

The low pressure carbon dioxide isothermals at 25° were determined for several different active charcoals in the presence of carbon tetrachloride and hydrocyanic acid adsorbed singly and together. The vapors adsorbed singly impede but do not change the nature of the adsorption process for carbon dioxide; when adsorbed together, however, they suppress the irreversible adsorption of carbon dioxide completely and allow only superimposed simple adsorption. The theory is advanced that neither carbon tetrachloride nor hydrocyanic acid adsorbed singly can completely occupy all the active points on the charcoal surface because their molecules are too large. This theory is based mainly on considerations of the adsorption and displacement of carbon dioxide at low pressures but is supported by other facts.

CLANCY, D. Y. (52)

LONG-TAILED MEALY BUG ABUNDANT ON CITRUS. Jour. Econ. Ent. 26: 1171. 1933. [Abstract in Rev. Appl. Ent. 22(A): 100. 1934.]

Fumigation with hydrocyanic acid under tents gave excellent results.

CLAWSON, A. B., BUNYEA, H., and COUCH, J. F. (53)

REMEDIES FOR CYANIDE POISONING IN SHEEP AND CATTLE. Jour. Wash. Acad. Sci. 24: 369-385. 1934. [Abstract in Chem. Abs. 28: 7367. 1934.]

The minimum lethal dosages in mg. of hydrocyanic acid per kg. of body weight administered by drench (orally) as potassium cyanide were, sheep, 2.315, and cattle, 2.042. The minimum toxic doses were 0.992 and 0.882 respectively. Methylene blue, sodium tetrathionate, sodium thiosulphate, sodium nitrite and combinations of the last two, administered intravenously promptly after cyanide, protected against certain lethal doses of cyanide. The most marked effects were in cattle where 10 cc. of 20 percent sodium nitrite and 30 cc. of 20 percent sodium thiosulphate protected a cow that had received two fatal doses of cyanide.

COATES, J. E., and TAYLOR, E. G. (54)

ELECTRICAL CONDUCTIVITY OF SALTS IN ANHYDROUS HYDROGEN CYANIDE. Nature 134: 141. 1934. [Abstract in Chem. Abs. 28: 6048. 1934.]

COOPER, K. F. (55)

FUMIGATING COMPOSITION. United States Patent 1,967,290, issued July 24, 1934; applied for June 2, 1924; assigned to American Cyanamid Co. [Abstract in Chem. Abs. 28: 5918. 1934.]

A composition suitable for destroying insects, scales, etc., comprising a mixture of a soluble cyanide such as calcium cyanide and a hygroscopic salt such as calcium chloride which is decomposed by moisture.

COTTERELL, G. S. (56)

INFESTATION OF STORED COCOA BY WEEVIL (ARAECERUS FASCICULATUS) AND MOTH (EPHESTIA CAUTELIA). Gold Coast Dept. Agr. Bull. 28, 14 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 618. 1934.]

Some data on the life history of the two insects are given, and methods of control, including fumigation with hydrocyanic acid and carbon disulfide are discussed.

DAVIDSON, J. (57)

THE "LUCERNE FLEA" SMYNTHURUS VIRIDIS L. (COLLEMBOLA) IN AUSTRALIA. Coun. Sci. Indus. Res. Aust. Bull. 79, 66 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 448. 1934.]

All the eggs were destroyed in laboratory tests by fumigation with carbon disulfide (0.4 cc. per 3,000 cc. volume for 25 hours) or hydrocyanic acid (2.5 mg. to 10 cu. ft. for 17 hours or 3.75 mg. for 3 hours.

DAVIES, C., Jr. (58)

PURIFYING FUEL GAS. United States Patent 1,942,050, issued Jan. 2, 1934; applied for May 7, 1939; assigned to the Koppers Co. [Abstract in Chem. Abs. 28: 1844. 1934.]

A process for removing hydrocyanic acid from fuel gas is claimed.

DEUTSCHE GESELLSCHAFT FÜR SCHÄDLINGSBEKÄMPFUNG (M. b. H.) (59)
CONTAINER FOR HYDROCYANIC ACID. German Patent 601,640, issued Aug. 21, 1934; applied for Nov. 30, 1932. [In German. Abstract in Chem. Abs. 28: 7438. 1934.]

The container is made of chlorinated rubber.

DIETERLE, P. (60)

CYANOGEN CHLORIDE. United States Patent 1,938,324, issued Dec. 5, 1933; applied Mar. 14, 1927; assigned to National Aniline and Chemical Co. [Abstract in Chem. Abs. 28: 1148. 1934.]

Reaction is effected between chlorine and an alkali metal cyanide in the presence of a halogenated aliphatic hydrocarbon such as carbon tetrachloride and of an organic monocarboxylic acid such as glacial acetic which is soluble in the halogenated hydrocarbon used, in the substantial absence of water. By the use of bromine instead of chlorine a similar reaction may be effected.

DRUCKER, J., LUEG, P., and WEISE, P.

ALKALI METAL CYANIDES. United States Patent 1,955,229, issued April 17, 1934; applied for June 8, 1933; in Germany Sept. 22, 1926. Assigned to I. G. Farbenind, A.-G. [Abstract in Chem. Abs. 28: 3847. 1934.]

An excess mixture of ammonia and carbon monoxide is caused to act on an alkali metal oxide, hydroxide, carbonate, sulfide, sulfate, formate, or acetate at a temperature of about 580-650° in the absence of solid carbon.

DUSTAN, A. G. (62)

THE GLADIOLUS THRIPS AND ITS CONTROL. Quebec Soc. Protect. Plants. 23d and 24th Ann. Repts. 1930-1932: 32-37. 1932. [Abstract in Chem. Abs. 28: 2113. 1934.]

Excellent control of the insect was obtained by fumigating the plants with calcium cyanide under oilcloth or brown paper tents.

EDWARDS, W. H. (63)

REPORT OF THE GOVERNMENT ENTOMOLOGIST. Jamaica Dept. Agr. Rept. 1932: 16-18. 1933. [Abstract in Rev. Appl. Ent. 22(A): 66. 1934.]

Gryllus assimilis F., in gardens and citrus nurseries, was controlled by soil fumigation with calcium cyanide.

ELDRIDGE, E. F. (64)

REDUCING THE TOXICITY OF CYANIDE WASTES. Eng. News-Record 111: 677. 1933. [Abstract in Chem. Abs. 28: 845. 1934.]

EULER, U. S. (65)

THE ACTION OF DINITRO-A-NAPHTHOL, METHYLENE BLUE, AND RELATED COMPOUNDS AS RESPIRATORY STIMULANTS. Arch. Internat. Pharmacodyn. et Ther. 43: 67-85. 1932. [In French. Abstract in Biol. Abs. 8: 1974. 1934.]

FESEFELDT, H. (66)

ABSORPTION SPECTRA OF SALTS WITH HALOID COMPLEX IONS. Nachr. Gesell. Wiss. Gottingen, Math. Physik. Kl. 1932: 353-355. [In German. Abstract in Chem. Abs. 28: 2268. 1934.]

FLEMING, W. E., and BAKER, F. E. (67)

THE EFFECTIVENESS OF STOMACH-POISON INSECTICIDES ON THE JAPANESE BEETLE. Jour. Agr. Research 49: 39-44. 1934. [Abstract in Rev. Appl. Ent. 22(A): 634. 1934.]

The effectiveness of several stomach poisons on the Japanese beetle was determined under controlled conditions. A cuprous cyanide paste, containing 43 percent cuprous cyanide was found to be a little less than half as effective as lead arsenate.

FLINT, W. P., et al. (68)

ENTOMOLOGY INVESTIGATIONS. Ill. Agr. Expt. Sta. Rept. 46 (1932-33): 137-163. 1933. [Abstract in Rev. Appl. Ent. 22(A): 356. 1934.]

Mention is made of the control of mushroom mites with hydrocyanic acid.

FORESTI, B. (69)

THE REACTION OF CYANIDE IONS WITH TETRATHIONATE AND PENTATHIONATE IONS. Ztschr. Anorgan. Allg. Chem. 217: 33-47. 1934. [In German. Abstract in Chem. Abs. 28: 2635. 1934.]

The reactions between potassium cyanide and alkali tetrathionate and pentathionate were studied. In the presence of buffers in the pH range 7-8 the formation of the CNS ion from the CN ion was quantitative, and it was not necessary to express the reactions in neutral and alkali solutions by different equations. In unbuffered solutions 1/8 of the CN ion is transformed before the reaction is halted. With both the tetrathionate and pentathionate ions the reactions with the CN ion were of the second order. The velocity constants at pH 7.31 were 5.44 and 25.05. At pH 7.54 the constants changed to 10.25 and 51.2. The effect of pH was about the same on both reactions. The reaction of the S_5O_6 ion with the CN ion takes place in two steps. The pentathionate ion reacts with the CN ion forming CNS ion and tetrathionate which in turn reacts with a second CN ion. It appears that the pentathionate ion might be useful as antidote in hydrocyanic acid poisoning.

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THE STUDY OF THE REACTIONS BETWEEN HYDROCYANIC ION AND TETRATHIONATE AND PENTATHIONATE IONS. Atti. Soc. Ital. Prog. Sci. [Rome] 22 (2): 263-264. 1934. [In Italian. Abstract in Chem. Abs. 28: 6383. 1934.]

From examination of the reaction products at various pH values, the author thinks that the reaction between CN^- and $S_4O_6^{--}$ ions is: $S_4O_6^{--} + CN^- + 2OH \rightarrow S_2O_3^{--} + SO_4^{--} + CNS^- + H_2O$. The reaction between CN^- and $S_5O_6^{--}$ is: $S_5O_6^{--} + CN^- \rightarrow S_4O_6^{--} + CNS^-$ and then the $S_4O_6^{--}$ reacts with the CN^- as above.

FOX, D. L. (71)

THE SILVER IODIDE TEST FOR HYDROCYANIC ACID. Science 79: 37. 1934. [Abstract in Chem. Abs. 28: 990. 1934.]

Grignard's test with sodium picrate papers is very delicate for detecting hydrocyanic acid in the air, but it is not specific. The following test is valuable for confirmation. Place one drop of a 5 percent potassium iodide solution, 1 drop of 0.001 N silver nitrate and 1 cc. of 5 percent potassium hydroxide in a small clean test tube. A faint bluish cloud of silver iodide will form. Draw air through the liquid and if hydrocyanic acid is present in the air, the turbidity will disappear.

FRANCK, H. H., and BANK, H. (72)

CHEMISTRY OF CALCIUM CYANAMIDE. IV. AZOTIZATION EQUILIBRIUM OF THE ALKALINE EARTH CARBONATES WITH AMMONIA AND ALKALINE EARTH OXIDES WITH HYDROCYANIC ACID. Ztschr. Anorgan. Allg. Chem. 215: 415-426. 1933. [In German. Abstract in Chem. Abs. 28: 1593. 1934.]

The equilibrium $MeCN_2+3H_2O = MeCO_3 + 2NH_3$ was measured for calcium, strontium and barium. The equilibrium $MeO + 2HCN = MeCN_2 + CO + H_2$ was measured for calcium and magnesium from both sides and good agreement obtained. From this equilibrium the conventional chemical constant for hydrocyanic acid was found to be i = 3.5.

-------- and BURG, W. (73)

CALCIUM CYANAMIDE V. CYANIDE-MELT PROCESS AND ITS INVERSION (PREPARATION OF CALCIUM CYANAMIDE FROM SODIUM CYANIDE). Ztschr. Elektrochem. 40: 686-692. 1934. [In German. Abstract in Brit. Chem. Abs. 1934(A): 1175. 1934.]

The inversion of the reaction $CaCN_2+C+2NaC = CaCl_2+2NaCN$ has been studied at 900°, 1,000°, and 1,100°. The formation of calcium cyanide is favored by lowering the temperature.

FREITAG (74)

POISONING BY PREPARATIONS FOR CLEANING SILVER. Chem. Ztg. 58: 701. 1934. [In German. Abstract in Brit. Chem. Abs. 1934(B): 929. 1934.]

An epidemic of nonfatal poisoning cases in America was traced to the use of a sodium cyanide silver-cleaning preparation containing 20 percent sodium cyanide.

FRICKHINGER, H. W. (75)

GAS IN INSECT CONTROL. 87 pp. Berlin [In German. Abstract in Chem. Abs. 28: 2087. 1934.]

Nearly half the text is devoted to hydrocyanic acid.

FRIEDHEIM, E. A. H., and BAER, J. G. (76)

STUDIES ON THE RESPIRATION OF DIPHYLLOBOTHRIUM LATUM (L). STUDY OF THE RESPIRATORY ENZYMES. Biochem. Ztschr. 265: 329-337. 1933. [Abstract in Chem. Abs. 28: 789. 1934.]

Potassium cyanide suppresses the respiratory activity of the egg completely, but that of the adult worm only partially.

FUKUI, T. (77)

THE EFFECT OF THE INJECTION OF POTASSIUM CYANIDE UPON THE OXYGEN DISSOCIATION CURVE OF THE BLOOD, ESPECIALLY WITH RESPECT TO THE EFFECT OF THE CYANIDE UPON THE ACTIVITY OF VARIOUS HORMONES. I. THE EFFECT OF THE INJECTION OF SMALL DOSES OF INSULIN AND OF INSULIN AND DEXTROSE. Folia Endocrinol. Japon. 8: 94-96. 1933. [In Japanese. Ref. in Chem. Zentr. 1933, II. 235, 1937.]

II. IN RELATION TO THE THYROID GLAND. Ibid. 96-97.

III. THE EFFECT OF THE GENITAL GLANDS UPON THE ACTION OF POTASSIUM CYANIDE. Ibid. 103-104.

IV. THE EFFECT OF SUPRARENAL CAPSULE CORTEX AND ADRENALINE UPON THE ACTION OF POTASSIUM CYANIDE. Ibid. 106-107.

V. THE EFFECT OF CASTRATION UPON THE ACTION OF POTASSIUM CYANIDE. Ibid. 107-108.

VI. THE EFFECT OF THE EXTIRPATION OF THE SPLEEN UPON THE ACTION OF POTASSIUM CYANIDE. Ibid. 9: 2-3. 1933.

GASSNER, L. (78)

WARNING OF HYDROCYANIC ACID FUMIGATION. United States Patent 1,949,466, issued Mar. 6, 1934; applied for Jan. 12, 1929; in Germany Jan. 16, 1928; assigned to Deutsche Ges. für Schädlings Bekämpfung m. b. H. [Abstract in Chem. Abs. 28: 2812. 1934.]

A warning agent having a higher vapor pressure than hydrocyanic acid, such as cyanogen chloride or bromide, and another warning agent having a lower vapor pressure than hydrocyanic acid such as bromacetophenone is added to a hydrocyanic acid fumigating composition so that warning will be given throughout the period that a toxic concentration exists.

GEIT, K. H., and HARTECK, P. (79)

ADDITION REACTIONS WITH HYDROGEN AND OXYGEN ATOMS AT LOW TEMPERATURES. Ber. Deut. Chem. Gesell. 66B: 1815-1825. 1933. [In German. Abstract in Chem. Abs. 28: 983. 1934.]

The reaction of hydrogen atoms at -190° and of oxygen atoms at -183° with hydrocyanic acid and other substances was studied.

GENAUD, P. (80)

ACTION OF HYDROCYANIC ACID ON NEUROMUSCULAR EXCITABILITY. Compt. Rend. Soc. Biol. 116: 852-854. 1934. [In French. Abstract in Chem. Abs. 28: 6480. 1934.]

GEORGE, P. V., and WEBSTER, W. J. (81)

PLAGUE INQUIRY IN THE CUMBUM VALLEY, SOUTH INDIA. Indian Jour. Med. Research 22: 77-104. 1934. [Abstract in Rev. Appl. Ent. 22(B): 220. 1934.]

Apparently satisfactory results have been obtained from the fumigation of rat burrows with cyanogas calcium cyanide, but further observations are necessary before the exact value of fumigation can be assessed. Notes are given of the technique used in fumigating.

GESELLSCHAFT FÜR KOHLENTECHNIK (M. b. H.) (82)

SODIUM CYANIDE. French Patent 751,191, issued Aug. 28, 1933; applied for Feb. 21, 1933. [In French. Abstract in Chem. Abs. 28: 1150. 1934.]

Sodium carbonate containing water of crystallization is subjected to dehydration under a temperature such that there is no solution, fusion, or fritting of the salt, and hydrocyanic acid is afterward directed at a higher temperature onto the dehydrated salt. In a modification sodium bicarbonate is heated under vacuum to a temperature not above 102° and hydrocyanic acid is directed onto the calcined salt at a higher temperature.

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HYDROCYANIC ACID. French Patent 752,296, issued Sept. 20, 1933; applied for Mar. 11, 1933. [In French. Abstract in Chem. Abs. 28: 862. 1934.]

Hydrocyanic acid is obtained by treating compounds, containing a thiocyanate radical, in the form of a gas or fine division at a high temperature, separately or in the presence of other gases or vapors, by air in the presence or not of catalysts. The heat necessary for the volatilization of the thiocyanate compound, evaporation of the materials accompanying it, and oxidation of the thiocyanate radical is obtained by introducing the thiocyanate compounds into hot combustion gases containing an excess of air and causing the mixture to pass through an oxidation chamber.

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(84)

SODIUM CYANIDE. British Patent 398,732, issued Sept. 21, 1933; applied for Feb. 21, 1933; in Germany Feb. 26, 1932. See French Patent 751,191. [Abstract in Chem. Abs. 28: 1481. 1934.]

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(85)

HYDROCYANIC ACID. (Gluud, W., and Keller, K., inventors.) German Patent 576,531, issued Nov. 18, 1933; applied for Mar. 17, 1932. See French Patent 752,296. [In German. Abstract in Chem. Abs. 28: 1476. 1934.]

GERTLER, A. O., and ST. GEORGE, A. V. (86)

CYANIDE POISONING. Amer. Jour. Clin. Path. 4: 429-437. 1934. [Abstract in Chem. Abs. 28: 6848. 1934.]

A discussion, including the relative incidence of cases over a period of 15 years, pathology, and mechanism of the action of cyanides, chemical tests for identification and means of differentiating cases of poisoning by inhalation and ingestion.

GINSBURG, J. M. (87)

LABORATORY TESTS WITH VARIOUS FUMIGANTS ON CODLING MOTH LARVAE. Jour. Agr. Research 46: 1131-1136. 1933. [Abstract in Expt. Sta. Rec. 70: 65. 1934.]

GOELLER, K. H. (88)

DEPILATION WITH CYANIDES. Jour. Intern. Soc. Leather Trades Chem. 18: 388-393. 1934. [Abstract in Chem. Abs. 28: 6337. 1934.]

Skins were limed with mixtures containing sodium cyanide together with sodium hydroxide, calcium hydroxide, sodium bicarbonate, sodium chloride, etc. in varying amounts and combinations. In the only successful tests, a paint containing calcium oxide, sodium hydroxide, and sodium cyanide was used and this was followed by liming with calcium hydroxide and sodium sulfide. Sodium cyanide in the used liquor is not considered dangerous, as it is rapidly converted to cyanate by oxidation. Skin scrap may contain small amounts (0.02 - 0.05 percent Sodium cyanide on dry skin basis), which it is believed would be removed or destroyed in gelatin manufacture.

GOETTE, W. (89)

INVESTIGATION OF THE INFLUENCE OF HABITAT FACTORS ON THE STRUCTURE OF CERTAIN LILIES AND THE INTERFERENCE OF HYDROCYANIC ACID FUMIGATION. Beitr. Biol. Pflanz. 19: 35-66. 1931. [In German. Abstract in Biol. Abs. 8: 2326-2327. 1934.]

GOLLMAR, H. A. (90)

PURIFYING GAS CONTAINING HYDROGEN SULFIDE AND HYDROGEN CYANIDE. United States Patent 1,971,779, issued Aug. 28, 1934; applied for Jan. 8, 1932; assigned to Koppers Co. [Abstract in Chem. Abs. 28: 6554. 1934.]

GRANGERS MANUFACTURING COMPANY (91)

ALKALI CYANIDES. French Patent 754,970, issued Nov. 17, 1933; applied for Apr. 29, 1933. [In French. Abstract in Chem. Abs. 28: 1477. 1934.]

White alkali cyanides are obtained by heating them to a point considerably above the melting point, e.g., to about 1,200°, and cooling relatively slowly to the melting point. A small amount of air or other oxidizing agent may be introduced during the heating.

GRANGERS MANUFACTURING COMPANY (92)

ALKALI CYANIDES. French Patent 754,971, issued Nov. 17, 1933; applied for Apr. 29, 1933; in the United States July 15, 1932. [In French. Abstract in Chem. Abs. 28: 1477. 1934.]

A concentrated solution of alkali cyanide is heated rapidly to a point above the boiling point of the solution. The layer of cyanide formed is removed rapidly from the moist air.

GRAY, G. P. (93)

FUMIGATING CLOSED SPACES WITH FUMIGANTS SUCH AS IN DESTROYING SCALES ON TREES. United States Patent 1,967,304; issued July 24, 1934; applied for Aug. 27, 1929; assigned to American Cyanamid Co. [Abstract in Chem. Abs. 28: 5918. 1934.]

Various details of apparatus and methods are given.

GREAT BRITAIN MINISTRY OF HEALTH (94)

REPORT ON THE BEDBUG. Rept. Publ. Health. Med. Subj. 72, 46 pp. 1934. [Abstract in Rev. Appl. Ent. 22(B): 131. 1934.]

Upholstered furniture and infested houses were successfully fumigated with hydrocyanic acid.

GUBA, E. F., and HOLLAND, E. B. (95)

EFFECT OF HYDROCYANIC GAS ON CUCUMBER PLANTS PREVIOUSLY SPRAYED WITH COPPER FUNGICIDES. Mass. Agr. Expt. Sta. Bull. 303: 2-16. 1933. [Abstract in Chem. Abs. 28: 5166. 1934.]

Cucumber plants were not injured when sprayed with commercial copper carbonate or basic copper sulfate followed by fumigation with hydrocyanic acid. Laboratory-prepared neutral bordeaux mixtures with gas were injurious. When the plants were sprayed with basic copper sulfate to which calcium hydroxide had been added, injury followed the use of the gas and increased proportionately with the alkali present. When the plants were sprayed with acid copper fungicides, i.e., normal and basic copper acetates, acid bordeaux prepared with calcium hydroxide, sodium carbonate or sodium hydroxide, injury resulted from or was intensified by an application of gas. Copper sulfate solutions containing up to 0.07 percent copper sulfate were not injurious when used alone or in combination with hydrocyanic acid gas. The spray residue from injured leaves yielded soluble copper, and the amount of copper and the degree of injury increased in proportion to the amount of alkali present in the fungicide. The toxic salt is presumably calcium cuprocyanide or a similar soluble copper cyanide.

GUERIN, P. (96)

HYDROCYANIC ACID IN GRASSES: MELICA AND GYNERIUM. Compt. Rend. Acad. Sci. [Paris] 198: 383-384. 1934. [In French. Abstract in Chem. Abs. 28: 3762. 1934.]

The leaves of Melica ciliata collected in June contain 0.151-0.306 g. hydrocyanic acid per kg. and those of M. nutans or M. uniflora 0.10-0.15 g. Hydrocyanic acid is also detected in the roots but not in the fruit. The leaves of Gynerium argenteum contain .23 g. hydrocyanic acid in June, but the amount decreases as autumn approaches (0.054-0.068 g. in Sept.). The open inflorescence contains 0.28 g. but in the fruit hydrocyanic acid is absent.

GUTOROV, I. G. (97)

CUPROUS CYANIDE. Russian Patent 32,487, issued Oct. 31, 1933. [In Russian. Abstract in Chem. Abs. 28: 3537. 1934.]

Potassium cyanide is treated with cupric oxide in the presence of sodium sulfite.

HALE, W. P., et al. (98)

DISINFECTANTS, FUMIGANTS AND CLEANING MATERIALS. Amer. Ry. Engin. Assoc. 35 Bull. 362: 640-643. 1933. [Abstract in Chem. Abs. 28: 2123. 1934.]

The majority of disinfectants sold are usually various mixtures of cresol. Formalin is considered more effective. Hydrocyanic acid, sulfur dioxide, and pyrethrum powder are used widely for fumigation, but ethylene dichloride and ethylene oxide and carbon dioxide are being tried.

HANSEN, C. J. (99)

REMOVAL OF CYANOGEN COMPOUNDS FROM GASES. United States Patent 1,924,206, issued Aug. 29, 1933, applied for Jan. 23, 1931; in Germany Jan. 30, 1930; assigned to the Koppers Co. [Abstract in Brit. Chem. Abs. 1934(B): 489. 1934.]

HARA, R. (100)

ALKALI CYANIDE. Japanese Patent 100,143, issued Mar. 17, 1933. [In Japanese. Abstract in Chem. Abs. 28: 2474. 1934.]

Alkali cyanamide is prepared by heating alkali cyanide and alkali metal in an atmosphere of nitrogen at 400-650° with a catalyst (such as powdered iron). The product is converted to alkali cyanide by heating at 650-850° with carbon.

HARIG, G. (101)

INVESTIGATION OF THE EXPERIMENTAL INFLUENCE OF GROWTH STIMULI ON VEGETATIVE PROPAGATION AND REGENERATION. Ztschr. Wiss. Biol. Abt. E. Planta. 15: 43-104. 1931. [In German. Abstract in Biol. Abs. 8: 873. 1934.]

HARMAN, S. W. (102)

CODLING MOTH CONTROL EXPERIMENTS DURING 1933. Jour. Econ. Ent. 27: 222-225. 1934. [Abstract in Rev. Appl. Ent. 22(A): 289. 1934.]

Cuprous cyanide proved ineffective against the codling moth.

HARNED, B. K. and DEERE, C. J. (103)

THE INDUCED OXIDATION OF CYANIDE. Jour. Biol. Chem. 104: 727-736. 1934. [Abstract in Chem. Abs. 28: 3719. 1934.]

"The oxidation of sodium cyanide, yielding as the principal products oxalate and ammonia, is induced by the oxygenation of alkaline glucose solutions. About 1/2 of the extra oxygen absorbed by the alkaline glucose system under the influence of cyanide is used in the oxidation of the cyanide; the remainder, in a more complete oxidation of the sugar. Certain similarities in the behavior of glucose in the two systems and more especially the stimulating effects of cyanide make it necessary to consider the possibility that the results with the glucose-alkali cyanide systems have a counterpart in tissues."

HARRIS, H. M., and DECKER, G.C. (104)

PAPER BARRIERS FOR CHINCH BUG CONTROL. Jour. Econ. Ent. 27: 854-857. 1934. [Abstract in Rev. Appl. Ent. 22(A): 648. 1934.]

Post holes to catch the bugs were dug at intervals 4-6 inches from the side of the barrier of creosote-soaked paper and were dusted with calcium cyanide.

HATMANN, C. (105)

PLANT PROTECTION DIVISION, OFFICIAL PLANT INSPECTION IN 1932 IN THE FREE HARBOUR, HAMBURG. Jahresber. Inst. Angew. Bot. Hamburg. 50: 88-116. 1933. [In German. Abstract in Rev. Appl. Ent. 22(A): 5. 1934.]

Experiments in fumigating rose bushes with hydrocyanic acid indicated that they are not injured by a gas concentration of 0.1 percent by volume.

HELY, P. C. (106)

CITRUS RED SCALE - EXPERIMENTS WITH LIQUIFIED HYDROCYANIC ACID GAS FUMIGATION. Agr. Gaz. N. S. Wales 44: 823-826. 1933. [Abstract in Chem. Abs. 28: 2110. 1934.]

Fumigation with liquid hydrocyanic acid was slightly more effective than with an equivalent amount of calcium cyanide in controlling red scale (Chrysomphalus aurantii Mask.) on Valencia orange trees. Higher kills were obtained under closely woven light calico tents than under those made of heavy calico.

HERCE, P. (107)

THE CONCENTRATION OF HYDROCYANIC ACID GAS IN FUMIGATED SPACES. Bol. Pat. Veg. Ent. Agr. 7: 155-165. 1934. [In Spanish. Abstract in Rev. Appl. Ent. 22(A): 609. 1934.]

A method of sampling the air within a fumigated space by aspiration is described.

HEYMANS, C., BOUCKAERT, J. J., v. EULER, U. S., and DAUTREBANDE, L. (108)

CAROTID SINUS AND VASOMOTOR REFIEXES. Arch. Internat. Pharmacodyn. et Ther. 43: 86-110. 1932. [In French. Abstract in Biol. Abs. 8: 2231-2232. 1934.]

HILTNER, U., and GRUNDMANN, W. (109)

DIRECT POTENTIOMETRIC DETERMINATION OF HEAVY METAL IONS WITH POTASSIUM CYANIDE AND SODIUM SULPHIDE. Ztschr. Anorgan. Chem. 218: 1-15. 1934. [In German. Abstract in Brit. Chem. Abs. 1934(A): 746. 1934.]

HIMWICH, H. E., FAZIKAS, J. F., and HURLBURT, M. H. (110)

EFFECT OF METHYLENE BLUE AND CYANIDE ON RESPIRATION OF CEREBRAL CORTEX, TESTICLE, LIVER, AND KIDNEY. Soc. Expt. Biol. and Med. Proc. 30: 904-906. 1933. [Abstract in Biol. Abs. 8: 1165. 1934.]

A preliminary paper.

HITCHCOCK, A. E., CROCKER, W., and ZIMMERMAN, P. W. (111)

TOXIC ACTION IN SOIL OF ILLUMINATING GAS CONTAINING HYDROCYANIC ACID. Contrib. Boyce Thompson Inst. 6: 1-30. 1934. [Abstract in Chem. Abs. 28: 3443. 1934.]

The flow of gas through soil in which plants were grown caused injury depending on the rate of flow. Plants are injured by the residual products remaining in a gas-treated soil. Such toxicity is not due to ethylene, propylene, acetylene, butylene, carbon monoxide or lack of oxygen. The addition to the soil of potassium cyanide, phenol, benzene, toluene, or drip oil caused injuries to tomato plants similar to

those caused by gas. Soil exposed to air lost its toxicity at 20-80°; sealed samples eventually lost toxicity.

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TOXIC ACTION IN SOIL OF ILLUMINATING GAS CONTAINING HYDROCYANIC ACID.

Amer. Jour. Bot. 20: 674-675. 1933. [Abstract in Expt. Sta. Rec. 71: 170. 1934.]

HOPKINS, F. G., and ELLIOTT, K. A. C. (113)

THE RELATION OF GLUTATHIONE TO CELL RESPIRATION WITH SPECIAL REFERENCE TO HEPATIC TISSUE. Proc. Roy. Soc. [London] B109: 58-88. 1931. [Abstract in Biol. Abs. 8: 2186. 1934.]

HOUGH, W. S. (114)

COLORADO AND VIRGINIA STRAINS OF CODLING MOTH IN RELATION TO THEIR ABILITY TO ENTER SPRAYED AND UNSPRAYED APPLES. Jour. Agr. Research 48: 533-553. 1934. [Abstract in Rev. Appl. Ent. 22(A): 499. 1934.]

Colorado larvae reared under Virginia climatic conditions since 1928 have consistently demonstrated a distinct superiority over Virginia larvae in their ability to enter unsprayed apples, or apples sprayed with lead arsenate, cuprous cyanide, etc.

HUG, E. (115)

CYANIDE INTOXICATION IV. METHEMOGLOBIN-FORMING SUBSTANCES AS ANTIDOTES. Rev. Soc. Argent. Biol. 8: 523-526. 1932. [In Spanish. Abstract in Biol. Abs. 8: 1698. 1934.]

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(116)

INFLUENCE OF NITRITE AND SODIUM THIOSULPHATE IN CYANIDE INTOXICATION IN DOGS. Rev. Soc. Argentina Biol. 9: 197-201. 1933. In Spanish. Abstract in Biol. Abs. 8: 2232. 1934.]

Dogs survived 18 mgm. (6 fatal doses) of hydrocyanic acid when given sodium nitrite followed by sodium thiosulfate.

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USE OF SODIUM NITRITE AND THIOSULPHATE TOGETHER IN THE TREATMENT OF HYDROCYANIC ACID POISONING IN DOGS. Compt. Rend. Soc. Biol. 114: 711-714. 1933. [In French. Abstract in Chem. Abs. 28: 1101. 1934.]

The experiments previously reported for rabbits were repeated with dogs; the same results were obtained.

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FACTORS WHICH AFFECT THE TOXICITY OF HYDROCYANIC ACID. Compt. Rend. Soc. Biol. 115: 459-461. 1934. [In French. Abstract in Chem. Abs. 28: 3478. 1934.]

When injected into either a saphenic or mesenteric vein at the rate of 0.2 mg. per kg. of body weight per minute the lethal dose of hydrocyanic acid for dogs is 0.8 mg./ kg. Under ether anesthesia the lethal dose is smaller. Normally injection at the rate of 0.5 mg./ kg. is supported for 10 hours or more, i.e., the hydrocyanic acid is detoxified at this rate. Subcutaneously the median lethal dose is 3 mg./ kg.

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COMBINED ACTION OF VARIOUS ANTIDOTES FOR HYDROCYANIC ACID, ESPECIALLY SODIUM NITRITE AND THIOSULPHATE. Compt. Rend. Soc. Biol. [Paris] 115: 462-464. 1934. [In French. Abstract in Chem. Abs. 28: 3478. 1934.]

Injected intravenously in dogs 0.02 g. of sodium nitrite detoxifies 6-8 mg. of hydrocyanic acid. One gram of sodium thiosulfate detoxifies 1.2 mg. of hydrocyanic acid. A mixture of both salts gives better results. Methylene blue added to the mixture does not increase its efficacy. 2, 4-Dinitrophenol is not an antidote for hydrocyanic acid.

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THE SUPERIORITY OF THE COMBINATION OF SODIUM NITRITE WITH SODIUM THIOSULPHATE IN THE TREATMENT OF CYANIDE POISONING. Presse Med. [Paris] 42: 594-597. 1934. [In French. Abstract in Chem. Abs. 28: 6199. 1934.]

The combined effect is more than a mere addition. The dosage is 5-10 cc. of a 2 percent solution of sodium nitrite and afterward 10-20 cc. of a 30 percent sodium thiosulfate solution given intravenously. Inhalation of amyl nitrite is recommended during the first injection.

-------- and MARENZI, A. D. (121)

THE FIXATION OF HYDROCYANIC ACID BY ERYTHROCYTES CONTAINING METHEMOGLOBIN. Compt. Rend. Soc. Biol. [Paris] 114: 84-86. 1933. [In French. Abstract in Chem. Abs. 28: 526. 1934.]

Dog blood corpuscles were treated with sodium nitrite, phenylhydrazine, or other reagents to convert the hemoglobin to methemoglobin, washed with physiological salt solution, and treated with hydrocyanic acid solution. The methemoglobin formed by sodium nitrite fixed more than one but less than two equivalents of hydrocyanic acid, that formed by the other reagents less than one equivalent.

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(122)

MECHANISM OF THE ANTIDOTAL ACTION OF SODIUM NITRITE IN HYDROCYANIC ACID INTOXICATION. Ibid. pp. 86-87. 1933. [In French. Abstract in Chem. Abs. 28: 526. 1934.]

Dogs were used. The sodium nitrite forms methemoglobin which fixes the hydrocyanic acid. There is some evidence that the hydrocyanic acid is then slowly converted to thiocyanate and excreted in the urine.

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(123)

COMBINED ACTION OF SODIUM NITRITE AND SODIUM THIOCYANATE IN THE TREATMENT OF HYDROCYANIC ACID INTOXICATION IN RABBITS. Ibid. pp. 87-89. 1933. (cf. Chem. Abs. 27: 135.) [In French. Abstract in Chem. Abs. 28: 526. 1934.]

Rabbits survived several times the lethal dose of hydrocyanic acid when it was followed by 0.02 g./kg. of sodium nitrite, then 1 g./kg. of sodium thiosulfate given intravenously.

I. G. FARBENINDUSTRIE, A.-G.

(124)

HYDROCYANIC ACID. French Patent 42,610, issued Aug. 23, 1933; applied for Nov. 30, 1932. 2nd addn. to 715,052. [In French. Abstract in Chem. Abs. 28:1144. 1934.]

Derivatives of hydrocarbons, particularly those containing oxygen or halogens, e.g., methyl alcohol, ethyl alcohol, ethyl chloride, or ethylene dichloride are used instead of hydrocarbons in the process of French patent 715,052.

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(125)

ALKALI CYANIDES. German Patent 597,304, issued May 22, 1934; applied for Dec. 1, 1927. [In German. Abstract in Chem. Abs. 28: 5186. 1934.]

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(126)

REMOVING WEAK ACIDS FROM GASES. French Patent 765,519, issued June 12, 1934; applied for Dec. 15, 1933. [In French. Abstract in Chem. Abs. 28: 6986. 1934.]

A method is given for removing hydrogen sulfide and hydrocyanic acid from gases by the use of various bases.

IMPERIAL CHEMICAL INDUSTRIES, LTD.

(127)

HYDROCYANIC ACID. French Patent 749,665, issued July 27, 1933; applied for Jan. 28, 1933. [In French. Abstract in Chem. Abs. 28: 584. 1934.]

A rapid liberation of a determined amount of gaseous hydrocyanic acid is obtained by causing a determined amount of an alkali metal cyanide to react with about the stoichiometric amount of an alkali metal bisulfate, in the presence of a determined amount of water such that the average liberation of hydrocyanic acid, measured during a relatively short time is a maximum or nearly so.

INNES, J. R. M. (128)

EFFECT OF CYANIDE ON THE RAT THYROID GLAND. Endokrinologie 14: 12-21. 1934. [In German. Abstract in Chem. Abs. 28: 4486. 1934.]

Daily injection of large doses of acetonitrile failed to produce goiter in rats. The difference in the response of the rat and the rabbit to cyanide is accounted for by the fact that the rat elaborates and stores in its adrenal gland sufficient quantities of ascorbic acid (vitamin C), which exerts an antigoiterous action. The rat also shows a high resistance to cyanide which diminishes after adrenalectomy.

IONESCO-MATIU, A., and POPESCO, A. (129)

DETERMINATION OF CYANIDES AND THIOCYANATES BY THE MERCURIMETRIC METHOD. Chim. et Indus. [Paris]. Spec. Nos. 1011-1013. 1933. [In French. Abstract in Chem. Abs. 28: 432. 1934.]

The method is applicable to the determination of cyanides and thiocyanates, either alone or in the presence of each other, with the same degree of accuracy as present standard methods.

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DETERMINATION OF CYANIDES AND THIOCYANATES BY THE MERCURIMETRIC METHOD. Jour. Pharm. Chim. 19: 54-61. 1934. [In French. Abstract in Chem. Abs. 28: 5005. 1934.]

Details are given of an analytical method which, it is claimed, is as exact as the standard methods.

IWAI, J. (131)

THE CHANGES IN THE BLOOD DUE TO CALCIUM CYANIDE POISONING AS WELL AS THOSE DUE TO THE USE OF ALCOHOL. Fukuoka-Ikwadaigaku-Zasshi (Fukuoka Acta Medica) 25: 2208-2241. 1932. [In Japanese, with a German summary. Abstract in Biol. Abs. 8: 1195. 1934.]

JACOBI (132)

FATAL HYDROCYANIC ACID POISONING DUE TO THE USE OF BITTER ALMONDS. Deut. Ztschr. Gesell. Gerichtl. Med. 21: 337-341. 1933. [Abstract in Chem. Abs. 28: 3131. 1934.]

A case report.

JONES, L. H. (133)

ERADICATION OF NEMATODES IN GREENHOUSE SOILS BY THE USE OF CHEMICALS. Mass. Agr. Expt. Sta. Ann. Rept. 18. 1933. [Abstract in Chem. Abs. 28: 7411. 1934.]

When used with calcium cyanide, o-dichlorobenzene did not prove to be a satisfactory substitute for p-dichlorobenzene in the treatment of greenhouse soils for nematode control. The poisonous effects remained longer and the nematode kill was less.

JULIANO, J. B. (134)

ADDITIONAL CYANOPHORIC PLANTS OF THE MAQUILING REGION. IV. Philippine Agr. 22: 254-257. 1933. [Abstract in Chem. Abs. 28: 505. 1934.]

A list is given of botanical species in the organs of which hydrocyanic acid was found in a systematic testing of plants in the region.

KARSTEN, A. (135)

EFFECT OF CYANIDE ON BLACK HILLS TROUT. Black Hills Eng. 22: 145-174. 1934. [Abstract in Chem. Abs. 28: 5562. 1934.]

Cyanide concentrations over 1 p.p.m. are certain to kill all the trout in a stream in 20 minutes or less. Concentration as low as 50×10^{-9} is effective in about 120 hours. A concentration of 20×10^{-9} was found non-effective in 650 hours, and such a concentration is considered as the minimum lethal concentration that a stream can carry as far as the usual species of trout are concerned.

KELLER, K. (136)

HYDROCYANIC ACID. United States Patent 1,931,441, issued Oct. 17, 1933; applied for June 6, 1930; in Germany, June 6, 1929; assigned to Ges. für Kohlentechnik M. b. H. [Abstract in Chem. Abs. 28: 265. 1934.]

A solution of ammonium thiocyanate is treated with nitric acid which is always maintained in excess of 1 percent in the reaction mixture.

KIKUTA, T., and IZUMI, J. (137)

STUDIES IN FLUID EXCHANGE. XVIII. THE EFFECT OF HYDROCYANIC ACID UPON THE FORMATION OF URINE. Tôhuku Jour. Expt. Med. 22: 167-173. 1933. [Abstract in Chem. Abs. 28: 830. 1934.]

Sodium cyanide perfused through the kidney of a toad temporarily decreases the excretion of urine because of a direct action on the epithelium of the kidney.

KISTIAKOWSKY, G. B., and GERSHINOWITZ, H. (138)

THERMAL DISSOCIATION OF CYANOGEN INTO CYANIDE RADICALS. Jour. Chem. Phys. 1: 432-439. 1933. [Abstract in Brit. Chem. Abs. 1934(A): 30. 1934.]

CORRECTIONS. Ibid., p. 885. [Abstract in Brit. Chem. Abs. 1934(A): 145. 1934.]

KNOWLTON, G. F. (139)

INSECT PESTS IN UTAH. Utah Agr. Expt. Sta. Leafl. Nos. 1-6. Nov. 1933. [Abstract in Rev. Appl. Ent. 22(A): 68. 1934.]

In the fourth leaflet it is stated that Erythroneura comes, var. ziczac Walsh, and var. elegans McAtee, are the most serious pests of Virginia creeper, causing complete defoliation by the end of August in severe cases. Calcium cyanide, preferably a coarse type, is effective against all stages and is probably the best material for use in midsummer. When convenient, the dust may be applied to the vines under a canvas or cotton covering.

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INSECT PESTS IN UTAH. Utah Agr. Expt. Sta. Leafl. 43, 1934. [Abstract in Rev. Appl. Ent. 22(A): 499. 1934.]

A discussion of Nysius ericae Schill., a pest of numerous vegetables and small fruits. It may be controlled on the crops by a dust of calcium cyanide.

KRISHNA AYYAR, P. N. (141)

A VERY DESTRUCTIVE PEST OF STORED PRODUCTS IN SOUTH INDIA, CORCYRA CEPHALONICA, STAINT. (LEP.) Bull. Ent. Research 25(2): 155-169. 1934. [Abstract in Rev. Appl. Ent. 22(A): 488. 1934.]

Corcyra cephalonica Staint., all stages of which are described, has recently become the most abundant and destructive of the various lepidopterous pests of stored products in southern India. Carbon disulfide and hydrocyanic acid are considered to be the most satisfactory fumigants, though they are reported to have failed to control the eggs.

KULBERG, L. M., and SEMENTZOV, Y. A. (142)

IDENTIFICATION OF SILVER CYANIDE AND SILVER THIOCYANATE. Ukrain. Khem. Zhur. 8 Wiss. Teil. 168-170. 1934. [In Russian and German. Abstract in Chem. Abs. 28: 5006. 1934.]

When ignited silver cyanide gives a violet red and silver thiocyanate blue flame

LACEY, B. S. (143)

VAPORIZING FORMAMIDE. United States Patent 1,934,433, issued Nov. 7, 1933; applied for Aug. 17, 1929; assigned to E. I. du Pont de Nemours & Co., [Abstract in Chem. Abs. 28: 584. 1934.].

To vaporize formamide, as in the production of hydrocyanic acid, liquid formamide is brought into contact with a surface such as a silica tube heated to a temperature above the atmospheric boiling point of formamide at such a rate that no liquid formamide remains unvaporized in contact with the heating surface for any appreciable period of time. The apparatus is described.

LANDAUER, E. (144)

THE USE OF TEAR GAS IN FUMIGATION WITH HYDROGEN CYANIDE. Chinese Med. Jour. 47: 896-906. 1933. [Abstract in Chem. Abs. 28: 5589. 1934.]

The efficiency of cyanogen chloride, benzyl bromide, and chloropicrin, as indicators for the presence of hydrocyanic acid when used as a fumigant increases in the order given.

LEHMAN, R. S. (145)

LABORATORY EXPERIMENTS WITH VARIOUS FUMIGANTS AGAINST THE WIREWORM LIMONIUS (PHELETES) CALIFORNICUS MANN. Jour. Econ. Ent. 26: 1042-1051. 1933. [Abstract in Chem. Abs. 28: 6917. 1934.]

A number of fumigants, including acetonitrile, were tried. With the median lethal concentration in mg./l. for carbon disulfide = 1, that for acetonitrile was greatest (192.9).

LENTZ, O., and GASSNER, L. (146)

INSECT CONTROL WITH HIGHLY POISONOUS MATERIALS. PART I - HYDROCYANIC ACID (SCHADLINGSBEKÄMPFUNG MIT HOCHGIFTIGEN STOFFEN. HEFT I: BLAUSÄURE). Berlin. 72 pp. 1934. [In German. Abstract in Chem. Abs. 28: 5916. 1934.]

LEWIS, G. N., and SCHUTZ, P. W. (147)

VAPOR PRESSURE OF LIQUID AND SOLID DEUTOCYANIC ACID (DEUTERIUM CYANIDE). Jour. Amer. Chem. Soc. 56: 1002. 1934. [Abstract in Chem. Abs. 28: 2967. 1934.]

The vapor pressure of hydrocyanic acid (l.) can be expressed by the equation $\log 10\ p = 7.795 - 1467/T$; for the solid, $\log 10\ p = 9.372 - 1877/T$; the vapor pressure of deutocyanic acid (l.), $\log 10\ p = 7.695 - 1440/T - 175/T^2$; for the solid, $\log 10p = 9.467 - 1907/T$. There is very little difference between the vapor pressures of the liquid forms of hydrocyanic acid and deutocyanic acid. The freezing point of hydrocyanic acid is calculated to be 259° K., of deutocyanic acid, 261° K.

LINDERSTRØM-LANG, K. (148)

ANTAGONISM OF ZINC AND HYDROCYANIC ACID IN THEIR ACTION ON PEPTIDASE ACTIVITY. Ztschr. Phys. Chem. 224: 121-126. 1934. [In German. Abstract in Chem. Abs. 28: 4078. 1934.]

MACALLUM, A. D. (149)

CYANIDE PRODUCTION. United States Patent 1,966,253, issued July 10, 1934; applied for Aug. 8, 1933; assigned to E. I. du Pont de Nemours & Co. [Abstract in Chem. Abs. 28: 5609. 1934.]

A cyanide-forming gas, such as hydrocyanic acid or formamide vapor, is treated with an alkali metal carbonate, such as sodium carbonate, at a high temperature (suitably about 200-500°), and the resulting gas mixture is treated to remove at least one of the gaseous byproducts comprising water vapor and carbon dioxide, and the residual gas is passed into further contact with carbonate at a high temperature.

McDANIEL, E. I. (150)

MICHIGAN TERMITES OR "WHITE ANTS." Mich. Agr. Expt. Sta. Circ. Bull. 150: 3-14. 1934. [Abstract in Chem. Abs. 28: 6915. 1934.]

Termites can be eradicated by treating infested soils with sodium cyanide applied at the rate of 160 pounds per acre. The cyanide is dissolved in 12,000 gallons of water to facilitate even application.

MACKIE, D. B. (151)

ANNUAL REPORT OF THE DIVISION OF ENTOMOLOGY. Calif. Dept. Agr. Mo. Bull. 22: 1933, 457-472. 1934. [Abstract in Rev. Appl. Ent. 22(A): 532. 1934.]

The grape leafhopper (Erythroneura comes Say) continued to be the chief vine pest; calcium cyanide dust and nicotine were the principal insecticides used in its control.

MacMULLIN, R. B. (152)

SODIUM IMIDOCARBOXYLATE AND ITS DECOMPOSITION PRODUCTS. British Patent 407,200, issued Mar. 15, 1934; applied for Mar. 27, 1933; assigned to Mathieson Alkali Works. [Abstract in Chem. Abs. 28: 4846. 1934.]

If heating of sodium imidocarboxylate is effected in a reducing atmosphere or in the presence of a reducing agent, sodium cyanide and sodium carbonate are obtained.

MAKAROV, P. (153)

ANALYSIS OF THE ACTION OF CARBON MONOXIDE AND OF CYANIDES ON THE CELLS BY VITAL STAINING. INVESTIGATION ON THE INTESTINAL EPITHELIUM OF THE FROG. Protoplasma 20: 530-554. 1934. [In German. Abstract in Chem. Abs. 28: 4080. 1934.]

MALZAC, A. C. (154)

INSECTICIDE. French Patent 750,708, issued Aug. 17, 1933; applied for May 13, 1932. [Abstract in Chem. Abs. 28: 1133. 1934.]

An insecticide is composed of a viscous solution containing hydrocyanic acid which is liberated progressively. For example glycerol containing water 20 percent and hydrocyanic acid 4 percent.

MARVIN, C. J., and WALKER, M. (155)

HYDROCYANIC ACID. United States Patent 1,950,899, issued Mar. 13, 1934; applied for May 14, 1931; assigned to E. I. du Pont de Nemours & Co. [Abstract in Chem. Abs. 28: 3554. 1934.]

An acid such as sulfuric acid is caused to react with a sodium cyanide solution containing 0.0002-0.002 moles of a metal sulfite such as sodium sulfite per mole of sodium cyanide, the sulfite serving to inhibit the formation of decomposition products.

MEISEL, M. N. (156)

CHANGES PRODUCED IN LIVING PLANT CELLS BY CHEMICAL AGENCIES. I. ULTRAMICROSCOPIC STUDY OF THE CELLS OF ALLIUM SATIVUM. Bull. Acad. Sci. [U. S. S. R.] 7: 983-994. 1933. [In Russian. Abstract in Brit. Chem. Abs. 1934(A): 708. 1934.]

The nuclei of normal cells are faintly opalescent when viewed in dark field illumination. This opalescence is greatly reduced by potassium cyanide.

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THE ACTION OF CYANIDE SALTS ON THE DEVELOPMENT OF YEASTS. Zentbl. Bakt. Parasitenk. II. Abt. 88 pp. 449-459. 1933. [In German. Abstract in Chem. Abs. 28: 1074. 1934.]

The following salts were toxic to yeast in the order given: mercuric cyanide > sodium cyanide < potassium cyanide > ammonium cyanide. Long exposure to a weak cyanide solution caused a loss of fat in yeast cells, but brief exposure to stronger solutions did not have this effect

MENTZEL, A. (158)

POTASSIUM CYANIDE. German Patent 590,231, issued Dec. 29, 1933; applied for Mar. 18, 1932. [In German. Abstract in Chem. Abs. 28: 2134. 1934.]

A mixture of coke and potassium bicarbonate is briquetted, heated to 300-400° in the absence of air, and then treated with nitrogen at about 830°.

MILOVIDOVA, A., and GLAZUNOVA, Z. (159)

DETERMINATION OF CARBON DIOXIDE IN CYANIDES. Zavod. Lab. 3: 463. 193- [In Russian. Abstract in Brit. Chem. Abs. 1934(B): 831. 1934.]

Barium nitrate is added to the aqueous cyanide, the solution made to known volume, and the excess of barium determined in an aliquo of the filtrate.

MINSSEN, H. (160)

MANNA GRASS (GLYCERIA SPECTABILIS), A SPECIES OF HIGH HYDROCYANIC ACID CONTENT. Landw. Ver. Sta. 117: 279-312. 1933. [In German. Abstrac in Chem. Abs. 28: 6451. 1934.]

The relatively large proportion of hydrocyanic acid in manna gras probably occurs as an easily decomposable compound other than a gluco- side. Ensilage of the material reduces the hydrocyanic acid content. The liberation of hydrocyanic acid is accelerated by treatment of leav with 1 percent tartaric acid solution. Small quantities of hydrocyani acid also occur in the female inflorescence of maize.

MIZUTANI, K. (161)

THE EFFECT OF POTASSIUM CYANIDE POISONING ON THE RESPIRATION OF TISSUES, ESPECIALLY THE INFLUENCE OF DIFFERENT HORMONES ON THE ACTION OF THE POTASSIUM CYANIDE.

I. THE EFFECT OF INSULIN, THYROID SUBSTANCE AND ADRENALINE ON THE ACTION OF POTASSIUM CYANIDE. Folia Endocrinol. Japon. 8: 35-36. 1933. [Abstract in Chem. Zentbl. 1933(I): 1149, 1970.]

II. THE EFFECT OF THE GENITAL GLANDS ON POTASSIUM CYANIDE POISONING. Ibid., pp. 36-37.

III. THE EFFECT OF THE INJECTION OF EXTRACT OF SUPRARENAL CAPSULE CORTEX AND ALSO THAT OF THYROIDECTOMY ON THE ACTION OF POTASSIUM CYANIDE. Ibid., pp. 42-43.

MOORE, W. (162)

STUDIES OF THE "RESISTANT" CALIFORNIA RED SCALE AONIDIELLA AURANTII MASK. IN CALIFORNIA. Jour. Econ. Ent. 26: 1140-1161. 1933. [Abstra in Rev. Appl. Ent. 22(A): 99. 1934.]

It appears from the data so far accumulated that the difficulty involved is that of reaching the coccid through its scale rather than of overcoming any distinct immunity of the insect itself. Under conditions favorable to the absorption or adsorption of the gas, resistant and nonresistant strains may be killed equally well, whereas under conditions unfavorable to absorption but favorable to the action of hydrocyanic acid on the tissues of the coccid, the mortality of resistant strains is reduced appreciably but that of nonresistant strains little if at all. Such conditions are previous exposure to low concentrations, high temperature and low relative humidity during fumigation, and low humidity preceding, or low temperatures following, fumigation.

MONDAIN-MONVAL, P., and PARIS, R. (163)

THERMOMETRIC STUDY OF FORMATION OF INORGANIC COMPLEXES. Compt. Rend. Acad. Sci. [Paris]: 1154-1156. 1934. [In French. Abstract in Chem. Abs. 28: 3022. 1934.]

MORRIS, S., and LILLY, V. G. (164)

DISTILLATION OF HYDROCYANIC ACID FROM SULFURIC ACID SOLUTIONS. Indus. and Engin. Chem., Analyt. Ed. 5: 407-408. 1933. [Abstract in Chem. Abs. 28: 432. 1934.]

In distilling hydrocyanic acid from sulfuric acid solutions no retardation was caused by the presence of chloride ions. Loss of hydrocyanic acid occurs unless the rubber stoppers are covered with tinfoil. Ferrocyanide is a common impurity in commercial "C.P." cyanides, and when it is present high results are obtained. With ferrocyanide-free cyanide the method of Pagel and Carlson (Chem. Abs. 27: 243) is accurate. The rate of hydrolysis of hydrocyanic acid is a function of the acid concentration. Thirteen references are given.

MÜNCH, E., and NICOLAI, F. (165)

HYDROCYANIC ACID FROM FORMAMIDE. United States Patent 1,951,520, issued Mar. 20, 1934; applied for Mar. 31, 1927; assigned to I. G. Farbenind, A.-G. [Abstract in Chem. Abs. 28: 3534. 1934.]

MUGGERIDGE, J. (166)

METHODS OF CYANIDING IN GLASS HOUSES. ECONOMICAL CONTROL OF WHITEFLY. New Zeal. Jour. Agr. 42: 47-48. 1934. [Abstract in Rev. Appl. Ent. 22(A): 252. 1934.]

The use of hydrocyanic acid in New Zealand greenhouses against the whitefly is discussed. A dosage of 1/5 - 1/4 oz. sodium cyanide per 1,000 cu. ft. will kill all the adults and 90 percent of the scale stages, but not the eggs, so it must be repeated in 2-3 weeks. Generation of the gas with sulfuric acid is being largely supplanted by the use of a dry mixture of sodium cyanide and sodium bicarbonate.

MUNRO, F. L., and NEWTON, W. (167)

INHIBITION OF GROWTH OF FUNGI BY CHEMICALS. Sci. Agr. 14: 560-564. 1934. [Abstract in Chem. Abs. 28: 6917. 1934.]

Sixteen compounds including potassium cyanide are reported on, the concentrations which destroyed or inhibited Fusaria, Rhizoctonia, and Pythium being tabulated.

MUNTIOYLER, E., and BINNS, D. (168)

THE EFFECT OF CYANIDE AND OTHER SUBSTANCES ON THE OXYGEN UPTAKE OF RAT TISSUE. Amer. Jour. Physiol. 108: 80-90. 1934. [Abstract in Chem. Abs. 28: 6197. 1934.]

MURATA, J., and MISHIMA, R. (169)

CONTROL OF CEROPLASTES RUBENS MASK. ON DIOSPYROS KAKI. Agr. and Hort. 9: 1135-1144, 1325-1330. 1934. [In Japanese. Abstract in Rev. Appl. Ent. 22(A): 524. 1934.]

This coccid feeds on the young shoots of persimmon, doing great damage. Pruning the infested twigs in winter, fumigating the seedlings with hydrocyanic acid, and spraying with resin wash in the winter and during the hatching period are recommended for control.

N. V. STIKSTOFFBINDINGSINDUSTRIE "NEDERLAND." (170)

ALKALI CYANIDES. British Patent 401,627, issued Nov. 16, 1933; applied for Aug. 3, 1933. See German Patent 588,823. [Abstract in Chem. Abs. 28: 2856. 1934.]

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ALKALI CYANIDES. German Patent 588,823, issued Nov. 27, 1933; applied for Aug. 5, 1932. [In German. Abstract in Chem. Abs. 28: 2132. 1934.]

Alkali thiocyanates are heated to 400-800° in the presence of oxides of alkaline earth or heavy metals and carbon monoxide or gases containing carbon monoxide. Thus sodium thiocyanate is heated with zinc oxide and carbon monoxide to give sodium cyanide, zinc sulfide, and carbon dioxide. Yields of 96-98 percent cyanide are given.

NEUWIRTH, F. (172)

PURIFICATION OF CYANIDE-CONTAINING WASTE WATERS. Berg-und-Hüttenmännisches Jahrb. 81: 126-131. 1933. [Abstract in Chem. Abs. 28: 2819. 1934.]

Two methods are described to free waste waters of cyanides in solution. 1. By the action of carbon dioxide containing waste gases which liberate hydrocyanic acid. 2. By the action of ozonized air. This reaction is somewhat slow but can be hastened by addition of iron and magnesium salts as carriers of oxygen. The latter method also destroyed phenol in phenol-containing waste waters.

NEWMAN, L. J. (173)

THE SAN JOSE SCALE ASPIDIOTUS PERNICIOSUS (COMSTOCK). Jour. Dept. Agr. W. Aust. 10(2): 495-502. 1933. [Abstract in Rev. Appl. Ent. 22(A): 201. 1934.]

Compulsory measures for the control of San Jose scale in Western Australia include fumigation of fruit trees and other plants in nurseries with hydrocyanic acid.

NEWTON, W., HASTINGS, R. J., and BOSHER, J. E. (174)

STERILIZATION OF NARCISSUS BULBS BY IMMERSION IN SILVER NITRATE-POTASSIUM CYANIDE SOLUTION IN VACUO. Canad. Jour. Research 9: 31-36. Sci. Agr. 14: 51. 1933. [Abstract in Chem. Abs. 28: 1132. 1934.]

A mixture of silver nitrate 0.05 percent and potassium cyanide 0.15 percent combined in the ratio of 1 to 3 proved most effective for sterilizing narcissus bulbs.

NICOLAI, I., IVANOV, N., and OSNIZKAYA, L. K. (175)

HYDROCYANIC ACID AS A SOURCE OF NITROGEN FOR ASPERGILLUS NIGER. Biochem. Ztschr. 271: 22-31. 1934. [In German. Abstract in Chem. Abs. 28: 5499. 1934.]

In the presence of sugar Aspergillus niger grown on a nitrogen-free medium can vigorously assimilate hydrocyanic acid, the nitrogen content of its mycelium thereby increasing manyfold. Grown on a nitrogen-free medium the mold continues to throw off nitrogen, which, however, it cannot again utilize in spite of this severe nitrogen starvation.

NOSALEVICH, I. M. (176)

HYDROLYSIS OF AQUEOUS SOLUTIONS OF ALKALI CYANIDES ON EVAPORATION. Ukrain. Kem. Zhur. 8 Wiss. Tech. Teil. 226-236 (In German 236). 1934. [In Russian. Abstract in Chem. Abs. 28: 3973. 1934.]

Experiments were conducted on the hydrolysis of aqueous solutions of potassium cyanide on evaporation under various conditions of concentration and vacuum. It was found that at atmospheric pressure hydrolysis proceeds at the rate of 10 percent an hour for 3 hours regardless of concentration. As the process continues the rate falls off with increase in concentration. A study of hydrolysis at 20, 40, 80 mm. pressure shows that it decreases linearly and directly with pressure at the rate of 0.32 percent for every 10 mm. until a minimum is reached at

20 mm. Below this hydrolysis increases inversely with pressure. This is particularly true for less concentrated solutions. As to the effect of concentration of potassium cyanide on hydrolysis during evaporation in general, maximum hydrolysis occurs at 4.5-5 nitrogen concentration.

NYBOER, J. (177)

COMPARISON OF CHANGES IN CARDIAC AND RESPIRATORY RHYTHMS EFFECTED IN THE DOG BY CHANGES IN PHYSIOLOGICAL CONDITIONS. Amer. Jour. Physiol. 106: 204-224. 1933. [Abstract in Biol. Abs. 8: 1970-1971. 1934.]

O'DANIEL, E. V. (178)

FUMIGATING GRAIN. United States Patent 1,956,620, issued May 1, 1934; applied for Dec. 26, 1931. [Abstract in Chem. Abs. 28: 4168. 1934.]

A suitable amount of a solid material such as calcium cyanide for liberating hydrocyanic acid is added to the grain. Apparatus is described.

OFFORD, H. R., and VAN ATTA, G. R. (179)

PLANT KILLER. United States Patent 1,913,141, issued June 6, 1933; applied for July 24, 1929. [Abstract in Brit. Chem. Abs. 1934(B): 162. 1934.]

Sodium thiosulfate (11 pts.) is heated at 110° with cuprous cyanide (1 pt.) to form a complex tetrathiosulfatocyano-cuprite which is highly toxic to plant life and may be used for removing plants from roads, paths, etc.

ORSTRÖM, A. (180)

THE INFLUENCE OF HYPERTONIC SOLUTIONS CONTAINING POTASSIUM CYANIDE ON THE DEVELOPMENT OF SEA URCHIN EGGS. Arkiv. Zool. (Stockholm) 24B:1-5. 1932. [In Swedish. Abstract in Biol. Abs. 8: 2186. 1934.]

PAGE, A. B. P. and LUBATTI, O. F. (181)

THE APPLICATION OF FUMIGANTS TO SHIPS AND WAREHOUSES. I. DISTRIBUTION OF ETHYLENE OXIDE IN EMPTY WAREHOUSES. II. DISTRIBUTION OF HYDROGEN CYANIDE IN EMPTY WAREHOUSES. III. PENETRATION OF HYDROGEN CYANIDE INTO BAGS OF RAW CACAO STACKED IN PILES OF DIFFERENT SIZES. Jour. Soc. Chem. Indus. 52: 309-316T, 316-323T, 323-326T. 1933. [Abstract in Rev. Appl. Ent. 22(A): 2. 1934.]

Biological and chemical difficulties affect the value of laboratory determination of the toxicity of fumigants to insects. The chief chemical difficulty is that of accurate dosage under standard conditions of temperature and humidity; if the correct dosage has been found, successful commercial fumigation depends on the even distribution of the fumigant and the maintenance at every point of a sufficiently high concentration. In other words, the fumigation will be defined by the

course of the time-concentration curves at every point of the space under treatment.

These papers belong to a series that will deal mainly with a study of the curves obtained with different fumigants applied in various spaces, both empty and filled with goods and including the concentrations in large spaces, where bulk movement of the fumigant may occur, and also that in small ones, such as cracks, where penetration depends mainly on diffusion.

The first two papers contain accounts of work against the hibernating larvae of Plodia interpunctella Hbn., Ephestia elutella Hbn., and E. cautella Walk., on loose timber or in cracks of the fabric of empty warehouses: In large buildings where surface effects are not of great importance, the actual maximum concentration of hydrocyanic acid averages 60 - 80 percent of the theoretical. A cheap experimental method of vaporizing hydrocyanic acid is discussed.

The third paper deals with the penetration of hydrocyanic acid into bags of raw cacao, stacked in different ways. The results appear to show that where bags are stacked in bulk it is impracticable to obtain a lethal concentration in the less exposed ones. The quantity of residual hydrocyanic acid varied from 32 p.p.m. in sheltered bags to 40-45 p.p.m. in exposed ones. It is emphasized that other factors besides the method of stacking are important and require investigation.

PELUFFO, P. (182)

TOXICOLOGICAL DETECTION OF HYDROCYANIC ACID. An. Assoc. Quím. Farm. Uruguay 36: 95-118. 1933. [In Spanish. Abstract in Chem. Abs. 28: 990. 1934.]

A discussion, with bibliography.

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TOXICOLOGY OF HYDROCYANIC ACID. An. Assoc. Quím. Farm. Uruguay 37: 3-26. 1934. [In Spanish. Abstract in Chem. Abs. 28: 5367. 1934.]

A review of methods, with critical comments and some modifications.

PERRET, A., and PERROT, R. (184)

CATALYSIS AND TRANSFORMATION OF THE ALKALINE EARTH CYANIDES INTO CYANAMIDES. Compt. Rend. Acad. Sci. [Paris] 197: 764-766. 1933. [In French. Abstract in Chem. Abs. 28: 702. 1934.]

The equation $CaCl_2 + 2\ NaCN \longrightarrow CaNCN + C + 2NaCl$ represents a chemical change which is irreversible because of the change of calcium cyanide to calcium cyanamide and carbon. Finely divided metals, iron, cobalt, nickel, and manganese hasten the decomposition and consequently the primary reaction.

PERROT, E. (185)

THE DATE IN THE OASES OF THE ALGERIAN SAHARA. Not. Cent. Doc Pl. Med. No. 41, 70 pp. Paris. 1934. [In French. Abstract i Appl. Ent. 22(A): 709. 1934.]

In this report on the cultivation of date palms, brief referenc is made to infestation with scale. Among the many measures tested against it, only fumigation with hydrocyanic acid has shown promise.

PETCH, C. E., and MALTAIS, J. B. (186)

THE CARPENTER WORM (PRIONOXYSTUS ROBINIAE PECK) AND ITS CONTROL. Quebec Soc. Protect. Plants. 23d and 24th Ann. Rept. 1930-32: 131-136. 1932. [Abstract in Chem. Abs. 28: 2113. 1934.]

Excellent control of the insect on shade trees was obtained by forcing a thick mixture of solid calcium cyanide and linseed oil into the larval tunnels in the tree trunks.

PETERS, G. (187)

HYDROCYANIC ACID IN INSECT CONTROL. Stuttgart, 75 pp. 1933. [In German. Abstract in Chem. Abs. 28: 1808. 1934.]

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A SHORT GUIDE TO TREE FUMIGATION. 2d. Ed. 191 pp. Frankfort-on-Main. 1934. [In German. Abstract in Rev. Appl. Ent. 22(A): 84. 1934.]

PINCAS, H. (189)

CONVERSION OF CYANAMIDE INTO CYANIDE. Indus. Chim. 21: 413-415. 1934. [In French. Abstract in Chem. Abs. 28: 5605. 1934.]

A general discussion of the principal and side reactions involved in the production of cyanide from calcium cyanamide.

PIP, W. (190)

HYDROCYANIC ACID. German Patent 586,861, issued Oct. 27, 1933; applied for Feb. 22, 1927. [In German. Abstract in Chem. Abs. 28: 1476. 1934.]

Formamide, mixed with steam or steam and indifferent gases, is l over catalysts at high temperatures. The steam, etc., is preheated t a temperature which, with the reaction temperature, raises the cataly to the desired heat.

PLÜGGE, H. (191)

THE PERMEABILITY OF FROG KIDNEY. Pflüger's Arch. Physiol. 230: 434- 1932. [In German. Abstract in Biol. Abs. 8: 3303. 1934.]

PRANKE, E. J. (192)

CYANIDES. British Patent 398,454, issued Sept. 14, 1933; applied for Apr. 24, 1933; assigned to Grangers Mfg. Co. [Abstract in Chem. Abs. 28: 1478. 1934.]

Alkali metal cyanides are decolorized by heating to considerably above their melting points and cooling relatively slowly to a point near but above their freezing point. They may then be cooled to ordinary temperature at any desired rate. During the process the carbon is oxidized by the cyanates and carbonates present. A small quantity of air or other oxidizing agent may be added to the fused mass.

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SODIUM CALCIUM AND SODIUM CYANIDES. British Patent 400,949, issued Oct. 30, 1933; applied for Jan. 30, 1932. [Abstract in Chem. Abs. 28: 2135. 1934.] (See French Patent 730,426 and United States Patent 1,905,304.)

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SODIUM CYANIDE. British Patent 411,177, issued June 7, 1934; applied for Dec. 7, 1932; in the United States July 15, 1932. [Abstract in Chem. Abs. 28: 6954. 1934.]

Sodium cyanide is obtained from its solutions by rapidly heating a thin layer thereof by contact with a hot body having such a temperature above the boiling point of the solution that evaporation to the dry salt is effected in a brief time. The process is applicable to drying a moist mass of sodium cyanide or the hydrate, these becoming solutions at an increased temperature.

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SODIUM CYANIDE FROM SODIUM CALCIUM CYANIDE. United States Patent 1,947,570, issued Feb. 20, 1934; applied for Aug. 1, 1930. [Abstract in Chem. Abs. 28: 2858. 1934.]

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CYANIDE PRODUCTION. United States Patent 1,961,569; issued June 5, 1934; applied for Jan. 3, 1929; assigned to Grangers Mfg. Co. [Abstract in Chem. Abs. 28: 4847. 1934.]

A melted mixture of calcium carbide and sodium chloride is treated (as in a rotating horizontal furnace) so that portions are successively raised and dropped in an atmosphere of nitrogen and the reaction product is cooled. Apparatus is described.

PRATT, S. F., SWAIN, A. F., and ELDRED, D. N. (197)

STUDY OF AUXILIARY GASES FOR INCREASING THE TOXICITY OF HYDROCYANIC GAS. I. STUDIES WITH LADYBIRD BEETLES AS INDICES OF TOXICITY. Jour. Econ. Ent. 26: 1031-1041. 1933. [Abstract in Chem. Abs. 28: 5589. 1934.]

Almost 200 chemicals, covering a wide range of organic and inorganic compounds, were tested to determine the action of their vapors on coccinellids (chiefly Hippodamia convergens Guer.), in conjunction with hydrocyanic acid. Several were toxic in themselves, such as cyanogen chloride, but few approached hydrocyanic acid in toxicity. Some such as salicyl aldehyde were extremely irritating to the insects and some, such as carbon dioxide were stupefying. In general those that increased the toxicity of hydrocyanic acid were predominantly toxic or moderately toxic and irritating. Although the vast bulk of the compounds tested had no effect, the studies suggest that the toxicity of hydrocyanic acid can be decidedly enhanced by the use of auxiliary gases, particularly salicyl aldehyde, of which both man and plants appear to be quite tolerant.

PRICE, W. C. (198)

ABSORPTION SPECTRA OF FORMALDEHYDE AND HYDROGEN CYANIDE IN THE FAR ULTRA VIOLET. Phys. Rev. 46: 529. 1934. [Abstract in Chem. Abs. 28: 7157. 1934.]

Absorption bands were found in hydrocyanic acid at 1450 to less than 1000 A.

PRINS, E. C., and LEMMENS, J. F. (199)

PURIFYING MATERIALS BY THE USE OF SELECTIVE SOLVENTS. United States Patent 1,955,016, issued Apr. 17, 1934; applied for Sept. 22, 1931; in the Netherlands Sept. 11, 1930. [Abstract in Chem. Abs. 28: 3812. 1934.]

Such material as a crude alkali cyanide mixture is extracted with a good solvent for the desired product, such as alcohol containing 10 percent ammonia; there is also used a poor solvent for the desired substance capable of dissolving extrated impurities; the good solvent is distilled from the resulting extract, this causing separation of the desired substance by crystallization and the crystals are separated. Crude sulfur, caliche, etc., may be similarly treated.

PROTEUS (200)

FIFTY YEARS OF GAS PURIFICATION. Gas World 100: 447-452. 1934. [Abstrac in Chem. Abs. 28: 3872. 1934.]

Not only hydrogen sulfide, but also organic sulfur, hydrocyanic acid, and benzene removal and gas dehydration are reviewed.

QUAYLE, H. J. (201)

BORDEAUX SPRAYING AND FUMIGATION INJURY. Calif. Citrograph 18: 166, 184. 1933. [Abstract in Chem. Abs. 28: 4528. 1934.]

Small lemon seedlings were sprayed with 4-4/5-50 bordeaux, 4-4-50 bordeaux, and 4-4-50 zinc-lime sprays, and later fumigated with hydrocyanic acid at the rate of 10-25 cc. per 100 cu. ft. of chamber space for 45 minutes. After two weeks the check trees (unsprayed but fumigated) and those sprayed with zinc-lime showed little or no injury. Trees sprayed with 4-4/5-50 bordeaux were more or less injured while those sprayed with 4-4-50 bordeaux were more severely injured. Citrus trees were severely injured by fumigation with hydrocyanic acid after copper sulfate had been applied to the soil in such manner as to come in contact with the roots.

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EFFECT OF TEMPERATURE AND HUMIDITY ON FUMIGATION FOR RED SCALE. Calif. Citrograph 19: 264. 1934. [Abstract in Chem. Abs. 28: 6919. 1934.]

In laboratory experiments no significant difference in the control of red scale on lemons was obtained by fumigating the fruit with hydrocyanic acid in the temperature range 50-90° F. when the temperature of the fruit was increased directly from room temperature. Better control was obtained by preconditioning the fruit at 35-50° F. for 4-48 hours (70 percent relative humidity) than by preconditioning at 75-90° F. Higher kills of scales were obtained by fumigating at 22-50 percent relative humidity than at 90-100 percent. Fumigation injury to rooted lemon cutting was greater at 50° than at 90° F. (70° percent relative humidity). Cuttings in dry soil were injured to a greater extent than those in wet soil.

RANDALL, W. H. (203)

EFFECT OF SODIUM CYANIDE ON COMPLEMENT HAEMOLYSIS. Proc. Soc. Expt. Biol. Med. 30: 1412-1413. 1933. [Abstract in Brit. Chem. Abs. 1934(A):675. 1934.]

RAVINA, A., and LYON, S. (204)

TREATMENT OF CYANIDE AND CARBON MONOXIDE POISONING WITH METHYLENE BLUE. Presse Med. 41: 1651-1653. 1933. [In French. Abstract in Chem. Abs. 28: 4484. 1934.]

A discussion.

REFER, N. (205)

CHRONIC HYDROGEN CYANIDE POISONING. Gasmaske 6:19-20. 1934. [In German. Abstract in Chem. Abs. 28: 2410. 1934.]

Two cases are described of chronic hydrocyanic acid poisoning due to long continued breathing of hydrocyanic acid. The symptoms were loss in weight and appetite, headache, nausea, occasional collapse, numbness in the limbs, muscle pains. In one patient a characteristic acne appeared on the hands. Both subjects recovered when proper precautions were observed.

REINER, L. (206)

THE RELATION BETWEEN TOXICITY, RESISTANCE, AND TIME OF SURVIVAL, AND RELATED PHENOMENA. Jour. Gen. Physiol. 17: 409-444. 1934. [Abstract in Chem. Abs. 28: 4792. 1934.]

RICCA, B., and MEDURI, P. (207)

MECHANISM OF THE OXIDATION OF ALKALINE SOLUTIONS OF MERCURIC CYANIDE WITH HYPOBROMITES AND PERMANGANATES. Gazz. Chem. Ital. 64: 113-117. 1934. [In Italian. Abstract in Brit. Chem. Abs. 1934(A): 614. 1934.]

RICHARDSON, H. H. (208)

EXPERIMENTS ON THE CONTROL OF PHENACOCCUS GOSSYPII IN THE UNITED STATES. Ent. Soc. Wash. Proc. 36: 49. 1934. [Abstract in Rev. Appl. Ent. 22(A): 324. 1934.]

The most satisfactory control was obtained by fumigation with calcium cyanide, 3/8 - 1/2 oz. per 1,000 cu. ft. It resulted in a high rate of mortality to all stages except the eggs and caused no injury to Chrysanthemum in any stage of bloom.

RIGG, T., ASKEW, H. O., and KIDSON, E. B. (209)

OCCURRENCE OF CYANOGENETIC GLUCOSIDES IN NELSON PASTURE PLANTS. New Zeal. Jour. Sci. Tech. 15: 222-227. 1934. [Abstract in Chem. Abs. 28: 2033. 1934.]

Hydrocyanic acid in plants was determined by grinding, digesting 20-24 hours with water, filtering, and distilling in the presence of a few cc. 2N sulfuric acid solution. The alkaline distillate, not less than 100 cc., was titrated with silver nitrate solution. For grasses, red clover, alsyke, subterranean clover, and Lotus major the hydrocyanic acid ranged from 0.0001 to 0.0005 percent; for white clover from 0.0016 to 0.0124 percent, averaging 0.0045 percent.

ROBB, G. P., and WEISS, S. (210)

A METHOD FOR THE MEASUREMENT OF THE VELOCITY OF THE PULMONARY AND PERIPHERAL VENOUS BLOOD FLOW IN MAN. Amer. Heart Jour. 8: 650-670. 1933. [Abstract in Biol. Abs. 8: 1971-1972. 1934.]

Sodium cyanide in amounts sufficient to stimulate respiration was injected into 35 normal persons, and the effect on respiration and circulation observed. The average optimum dose for injection into the antecubital vein was 7 mgm. or 0.11 mgm. per kgm. of body weight.

ROBERTSON, R., and CALVERT, H. T. (211)

REPORT OF THE WATER POLLUTION RESEARCH BOARD FOR THE YEAR ENDED JUNE 30, 1932. [Gt. Brit.] Dept. Sci. Ind. Research Rept. 53 pp. 1932. [Abstract in Chem. Abs. 28: 2817. 1934.]

In a survey of the River Tees, cyanides in coke-oven wastes were found to be killing large numbers of fish. The cyanides could be rendered harmless by mixing with spent pickle liquor (ferrous chloride) or by aeration at 60°.

ROESSLER AND HASSLACHER CHEMICAL COMPANY (212)

HYDROCYANIC ACID. British Patent 401,351, issued Nov. 13, 1933; applied for May 12, 1932; in the U. S. May 14, 1931. [Abstract in Chem. Abs. 28: 2473. 1934.]

In the manufacture of hydrocyanic acid by the dehydration of formamide or the decomposition of sodium cyanide by sulfuric acid stabilizing concentrations of sulfur dioxide are maintained in the reacting system and retained in the hydrocyanic acid formed.

ROHDE, I. G. (213)

COMPOUNDS FROM SALICYLIDENE - AND HYDROCYANOSALICYLIDENEANILINE AS WELL AS ANALOGS AND RELATED SUBSTANCES. Jour. Prakt. Chem. 139: 17-43. 1934. [In German. Abstract in Chem. Abs. 28: 1671. 1934.]

A discussion of Schwab's compound prepared from potassium cyanide salicylidene aniline. Most of the details are given in dissertations to which reference is made.

ROSS, G. A. P. (214)

SHIP FUMIGATION AT THE PORT OF DURBAN. Jour. Roy. Sanit. Inst. 54: 35-40. 1933. [Abstract in Chem. Abs. 28: 550. 1934.]

Dusting with calcium cyanide is used in concentration of slightly over 1 to 11,000, or 60-80 g. dosages per 1,000 cu. ft. Compressed air and steam have been used to drive the gas from ill-ventilated places.

SAMUEL, R., and KHAN, M. J. (215)

THE THEORY OF COORDINATION BONDS: IV. RAMAN EFFECT OF SOME COMPLEX CYANIDES. Ztschr. Phys. 84: 87-91. 1933. [In German. Abstract in Chem. Abs. 28: 412. 1934.]

All investigated cyanides show one Raman line which the authors interpret as due to the oscillation of the carbon against nitrogen, while some of them show also a second line which is ascribed to the oscillation of cyanogen against the rest of the molecule. The latter line appears to be present only in complexes with the coordination No. 6.

SAPIENZA, S. (216)

THE TREATMENT OF CYANIDE POISONING WITH FRESHLY PREPARED SODIUM TETRATHIONATE. Bol. Soc. Ital. Biol. Sper. 9: 59-60. 1934. [Abstract in Chem. Abs. 28: 5133. 1934.]

The best antidotes for cyanide poisoning are sodium tetrathionate and sodium pentathionate. The latter is more efficient but is difficult to obtain and preserve. Sodium tetrathionate is easy to prepare but difficult to preserve. For practical use the product resulting from the reaction $2Na_2S_2O_3+I_2 = 2NaI + Na_2S_4O_6$ is injected. If a 20 percent solution of sodium thiosulfate is mixed with an equal volume of 10 percent of iodine (in 13 percent sodium iodide) the resulting solution contains 5.3 percent sodium tetrathionate. Therapeutically the dose is limited by the toxicity, which for rabbits is 0.0005 g. mol. per kilogram. The maximum dose for man would be 5 gm. Dogs and rabbits which had been injected with a dose of potassium cyanide 5 times the lethal quantity were saved by injecting this antidote, even when the symptoms of the poison were very evident.

SAVARD, J. (217)

IONIZATION POTENTIAL AND ENERGIES OF FORMATION OF NON-POLAR MOLECULES. Compt. Rend. Acad. Sci. [Paris]. 198: 751-753; Jour. Phys. Radium 5: 27-36. 1934. [In French. Abstract in Chem. Abs. 28: 2582. 1934.]

D. (energy of union) calculated from relations previously deduced agrees with the value determined thermochemically or spectrographically for a number of substances, including hydrocyanic acid.

SCHEERLINCK. (218)

PRINCIPAL INSECTS AND DISEASES OF AZALEA INDICA. Off. Hort. Min. Agr. Cl. Moyennes. Ser. Phytopath. 3, 21 pp. Brussels. 1933. [In French. Abstract in Rev. Appl. Ent. 22(A): 271. 1934.]

The chief pests of Azalea indica in Belgium are enumerated, and notes are given on the three most important. Among the control measures recommended for greenhouse practice is fumigation with calcium cyanide at the rate of 0.27 oz. per 1,000 cu. ft.

SCHMIDT, O. (219)

DETECTION OF HYDROCYANIC ACID IN CADAVERS IN CASES OF POISONING. Deut. Ztschr. Gesell. Gerichtl. Med. 21: 334-336. 1933. [In German. Abstract in Chem. Abs. 28: 3028. 1934.]

To 2 cc. of 10 percent potassium hydroxide solution add water and about 10 drops of yellow ammonium disulphide solution. Moisten a strip of filter paper with this solution and hang in a closed vessel, as in the Schonbein-Pagenstcher guaiac-copper sulfate test, before using for the cadaver material. The addition of dilute sulfuric acid liberates hydrocyanic acid. If mercuric cyanide poisoning is suspected

it is necessary to add sodium chloride. The potassium cyanide formed on the paper strips is converted to potassium thiocyanate by careful heating in a test tube. Cool and add a slightly acid solution of ferric chloride; if 0.1 mg. per liter is present, red ferric thiocyanate is formed.

SCHMITT, F. O., and NICOLL, P. A. (220)

HEAVY METAL CATALYSIS IN SMOOTH MUSCLE CONTRACTURE. Amer. Jour. Physiol. 106: 225-237. 1933. [Abstract in Chem. Abs. 28: 789. 1934.]

Contractions of smooth muscles, normally caused by drugs and chemical stimulants, are inhibited by sodium cyanide, hydrogen sulfide, and carbon monoxide.

SCHMITT, F. O., and SKOW, R. K. (221)

NERVE CATALASE. Amer. Jour. Physiol. 106: 404-413. 1933. [Abstract in Biol. Abs. 8: 2224. 1934.]

Sodium cyanide strongly inhibits nerve catalase.

SCHUMANN, C., FICH, R., and OBERREIT, E. (222)

DOUBLE COMPOUND OF CALCIUM CYANIDE AND AMMONIA. United States Patent 1,934,823, issued Nov. 14, 1933; applied for May 14, 1928; in Germany May 20, 1927. assigned to I. G. Farbenind. A.-G. [Abstract in Chem. Abs. 28: 587. 1934.]

A double compound of calcium cyanide and ammonia in the form of microscopic crystals having a diameter of at least 0.2 mm. is produced by the reaction of a calcium compound such as calcium oxide, calcium hydroxide, or a water-soluble calcium salt such as calcium nitrate with hydrocyanic acid and ammonia in the presence of water. This double compound decomposes into calcium cyanide and ammonia on heating.

SHULL, W. E., RILEY, M. K., and RICHARDSON, C. H. (223)

SOME EFFECTS OF CERTAIN TOXIC GASES ON THE BLOOD OF THE COCKROACH, PERIPLANETA ORIENTALIS (LINN.). Jour. Econ. Ent. 25: 1070-1072. 1932. [Abstract in Biol. Abs. 8: 1760-1761. 1934.]

Hydrocyanic acid was one of 34 gases tested. It produced no visible effect.

SLOTTA, K. H. (224)

BROMOCYANOGEN AND ANHYDROUS HYDROCYANIC ACID. Ber. Deut. Chem. Gesell. 67 B: 1028-1030. 1934. [In German. Abstract in Chem. Abs. 28: 5046. 1934.]

Directions are given for preparing these compounds in the laboratory.

SMITH, F. F. (225)

THE CYCLAMEN MITE AND THE BROAD MITE AND THEIR CONTROL. U. S. Dept. Agr. Circ. 301; 13 pp. 1933. [Abstract in Rev. Appl. Ent. 22(A): 128. 1934.]

The life histories of Tarsonemus pallidus Banks (cyclamen mite) and T. latus Banks (broad mite) are discussed and the two mites differentiated. Among the control measures recommended is fumigation with calcium cyanide (3 fumigations at intervals of 4 days), 3/8 - 1 oz. per 1,000 cu. ft. of space (a dosage injurious to some plants).

SMITH, G. (226)

REPORT ON (THE DETERMINATION OF) HYDROCYANIC ACID IN GLUCOSIDE-BEARING MATERIALS. Jour. Assoc. Off. Agr. Chem. 17: 182-185. 1934. [Abstract in Chem. Abs. 28: 4683. 1934.]

A collaborative comparison of the alkaline titration method, the prussian blue method, and the acid titration method showed clearly that the alkaline titration method is not suitable for the determination of such small quantities of hydrocyanic acid as are found in linseed meal. (Extreme variation 120-1034 p.p.m.). Considerable, though smaller, variations were obtained with the acid titration method (97-132 p.p.m.) and the prussian blue method (80-259 p.p.m.). A gravimetric method is proposed for study.

SMYTH, C. P., and McALPINE, K. B. (227)

DIPOLE MOMENTS OF PHOSGENE, HYDROGEN CYANIDE, AND CERTAIN SUBSTITUTED METHANES. Jour. Amer. Chem. Soc. 56: 1697-1700. 1934. [Abstract in Chem. Abs. 28: 5727. 1934.]

Values are given for the atomic polarization, the molar, refraction, the dipole moments, and for a and b in Debye's equation for polarization, for the vapors of phosgene, hydrocyanic acid, and methyl nitrite; the dipole moment is given for chloropicrin. Twenty-one references.

SOLANDT, O. M., SOLANDT, D. Y., ROSS, E., and GERARD, R. W. (228)

METHEMOGLOBIN AND METHYLENE BLUE AS CYANIDE ANTAGONISTS. Soc. Expt. Biol. Med. Proc. 31: 539-541. 1934. [Abstract in Chem. Abs. 28: 4488. 1934.]

Ciliated gill tissue of the quahog (Venus mercenaria) was isolated in sea water and its oxygen observed in Warburg manometers at 22°. Respiration was inhibited by cyanide and restored by suitable concentrations of methylene blue which appeared to act as a substitute for the cyanide-poisoned respiratory catalyst. The addition of sufficient methemoglobin completely reversed cyanide inhibition and prevented it when the pigment was added along with the cyanide. In the

intact vertebrate, methylene blue may act not only as a respiratory catalyst but also indirectly by forming methemoglobin which unites with cyanide and frees the normal respiratory enzyme.

SOUTHGATE, B. A., PENTELOW, F. T. K., and BASSINDALE, R. (229)

TOXICITY TO TROUT OF POTASSIUM CYANIDE AND P-CRESOL IN WATER CONTAINING DIFFERENT CONCENTRATIONS OF DISSOLVED OXYGEN. Biochem. Jour. 27: 983-985. 1933. [Abstract in Chem. Abs. 28: 533. 1934.]

At low oxygen concentrations the toxicity of the cyanide and p-cresol solutions increases rapidly with the decrease in the oxygen concentration.

SPENCE, A. W. (230)

THE EFFECT OF CYANIDES ON THE THYROID GLAND OF CHICKENS. Jour. Pharmacol. 48: 327-331. 1933. [Abstract in Chem. Abs. 28: 212. 1934.]

Chickens are extremely resistant to acetonitrile, the injection of 3 cc. resulting in no more than a narcotic effect. Presumably the cyanide radical is not split off by the chicken body. Repeated large doses have some goitrogenic effect.

STARE, F. J., and ELVEHJEM, C. A. (231)

STUDIES ON THE RESPIRATION OF ANIMAL TISSUES. Amer. Jour. Physiol. 105: 655-664. 1933. [Abstract in Biol. Abs. 8: 1669. 1934.]

The maximum cyanide inhibition ranges in different tissues between 48 and 87 per cent, the average being about 60 percent.

STICKSTOFFWERKE, G. (M.b.H.) (232)

ALKALI CYANIDES. German Patent 579,886, issued July 3, 1933; applied for Feb.6 1927. [In German. Abstract in Chem. Abs. 28: 1145. 1934.]

Alkali carbonates are heated to redness in a current of hydrocyanic acid and hydrogen or ammonia, carbon monoxide, and hydrogen. Thus soda is heated to 770-875° in a current of hydrocyanic acid and hydrogen to give a 99.6 percent yield of sodium cyanide.

STINER, H. (233)

TREATMENT OF INCOMING SUPPLIES IS A SAFEGUARD AGAINST INSECT PESTS. Food Indus. 6: 160-162. 1934. [Abstract in Chem. Abs. 28: 6559. 1934.]

The use of several fumigants including hydrocyanic acid is discussed.

STRACENER, L. (234)

INSECTS OF STORED RICE IN LOUISIANA AND THEIR CONTROL. Jour. Econ. Ent. 27: 767-771. 1934. [Abstract in Chem. Abs. 28; 6915. 1934.]

Chiefly a recommendation to use carbon disulfide and carbon dioxide. Hydrocyanic acid is considered extremely dangerous to use and its penetration poor.

SULMAN, H. L., and PICARD, H. F. K. (235)

HYDROCYANIC ACID FROM HEAVY METAL CYANIDES. United States Patent 1,938,469, issued Dec. 5, 1933; applied for Oct. 17, 1932; in Great Britain Dec. 18, 1931; assigned to General Engineering Co. [Abstract in Chem. Abs. 28: 1144. 1934.]

A heavy metal cyanide such as that of residual liquors from cyanide plants is heated in a reducing hydrogen-containing atmosphere and in the presence of an added metallic sulfide such as ground pyrites to a temperature sufficient to set free hydrocyanic acid and to cause the heavy metal to combine with the sulfur set free from the metallic sulfide. An arrangement of apparatus is described.

SUMMERVILLE, W. A. T. (236)

QUEENSLAND CITRUS SCALE INSECTS AND THEIR CONTROL. Queensland Agr. Jour. 41: 450-486, 568-591; 42: 4-33, 186-207. 1934. Also in Queensland Dept. Agr. Div. Ent. Bull. 10, 101 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 711. 1934.]

The various chemical measures for control are discussed and the results of experiments are given. A spray of resin, sodium hydroxide, and fish oil gave results not much inferior to fumigation with hydrocyanic acid.

TAYLOR, G.W. (237)

THE EFFECT OF HORMONES AND CERTAIN OTHER SUBSTANCES ON CELL (LUMINOUS BACTERIA) RESPIRATION. Jour. Cell. and Comp. Physiol. 1: 297-331. 1932. [Abstract in Biol. Abs. 8: 86. 1934.]

Evidence is offered to show that luminous bacteria afford a very rapid and easy method of measuring the rate of oxygen consumption sufficiently accurate for most purposes. Using this method it was found that methylene blue accelerated the respiratory rate 95 percent while M/10,000 potassium cyanide decreased the rate 92 percent.

TETTAMANZI, A. (238)

THE DETERMINATION OF NITROGEN IN CYANIDES BY THE KJELDAHL METHOD. Atti Accad. Sci. Torino, Classe Sci. Fis. Mat. Nat. 68: 153-160. 1933. [In Italian. Abstract in Chem. Abs. 28: 2296. 1934.]

The Kjeldahl method for nitrogen is found to be applicable, without any modifications, to the determination of nitrogen in cyanides. The method is applicable when the more rapid titration methods of Volhard and Liebig fail, as well as for all insoluble, complex, and nonelectrolyte cyanides.

THOMAS, C. A. (239)

FURTHER OBSERVATIONS ON MUSHROOM INSECTS. Jour. Econ. Ent. 27: 200-208. 1934. [Abstract in Chem. Abs. 28: 5588. 1934.]

The practical use of calcium cyanide, nicotine, carbon disulfide, and heat to control insects is discussed.

TRAUTMAN, J. A. (240)

METHYLENE BLUE IN THE TREATMENT OF HYDROCYANIC ACID GAS POISONING. U. S. Pub. Health Repts. 48: 1443-1447. 1933. [Abstract in Chem. Abs. 28: 1103. 1934.]

It is apparent from experiments on rabbits, white rats, and guinea pigs that injections of 1 percent methylene blue solution were of no value in treatment of hydrocyanic acid gas poisoning when the animals had adsorbed, by breathing, lethal or near lethal doses of gas in a short period of time.

TRUSZKOWSKI, R. (241)

URICASE AND ITS ACTION. V. FURTHER EXAMINATION OF OXKIDNEY URICASE. Biochem. Jour. 26: 285-291. 1932. [Abstract in Biol. Abs. 8: 341. 1934.

Uricase was irreversibly inactivated by a number of agents including neutral solutions of potassium cyanide.

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF PLANT QUARANTINE (242)

SERVICE AND REGULATORY ANNOUNCEMENTS 118: 1-30 (JAN. - MARCH, 1934.) [Abstract in Rev. Appl. Ent. 22(A): 571. 1934.]

Announcements include the fumigation of bananas in refrigerator cars by liquid hydrocyanic acid at the rate of 6 ounces or 3 pounds of 88-percent calcium cyanide.

UNO, S. (243)

THE EFFECT OF POTASSIUM CYANIDE UPON THE RETICULOCYTES AND THE INFLUENCE OF THE THYROID UPON THIS EFFECT. Folia Endocrinol. Japon. 9: 22-23. 1933. [In Japanese. Abstract in Chem. Abs. 28: 6201. 1934, and Chem. Zentr. 1933, II: 3582.]

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THE ACTION OF ADRENALINE AND INSULIN ON THE RETICULOCYTES AND THE EFFECT OF POTASSIUM CYANIDE ON THE ACTION. Folia Endocrinol. Japon. 9: 28. 1933. [In Japanese. Abstract in Chem. Abs. 28: 6201. 1934. Chem. Zentr. 1933, II: 3001.]

VAN HERK, A. W. H., and BADENHUIZEN, N. P. (245)

RESPIRATION AND CATALASE ACTION IN THE SAUROMATUM SPADIX. Acad. Sci. Amsterdam Proc. 37: 99-105. 1934. [In Dutch. Abstract in Chem. Abs. 28: 3762. 1934.

The article deals with the inhibiting effect of hydrocyanic acid.

VIANA, C., COGNOLI, H., and CENDON, J. (246)

ACTION OF SODIUM NITRITE IN CYANIDE POISONING. Compt. Rend. Soc. Biol. [Paris] 115: 1641-1645. 1934. [In French. Abstract in Chem. Abs. 28: 5131. 1934.]

Two attemped suicides were saved by treatment begun 10 minutes and 15 minutes after ingestion of about 5 g. and 2 g., respectively, of potassium cyanide. The treatment consisted of inhalations of amyl nitrite and intravenous injections of 20 cc. of 2 percent solution of sodium nitrite followed by 20 cc. of 30 percent sodium thiosulphate. The injections were repeated after 2 hours.

WAGLE, P. V. (247)

THE MANGO HOPPERS AND THEIR CONTROL IN THE KONKAN, BOMBAY PRESIDENCY. Agr. Live-Stock in India 4: 176-188. 1934. [Abstract in Rev. Appl. Ent. 22(A): 442. 1934.]

The life histories of three species of Idiocerus are reviewed and control measures discussed. Sulfur dust (2-3 applications at intervals of 2 weeks), which killed the nymphs, repelled the adults, and controlled mildew, was the most profitable treatment. Combinations of sulfur with calcium cyanide dust "A" (6 : 1) or with tobacco dust (5 : 1) were no better than sulfur alone.

WALKER, ALICE F. (EXECUTRIX FOR MARK WALKER, DECEASED), AND MARVIN, C. J. (248)

HYDROCYANIC ACID. Canadian Patent 339,124, issued Jan. 30, 1934; applied for Jan. 6, 1933; assigned to the Canadian Industries, Ltd. [Abstract in Chem. Abs. 28: 2473. 1934.]

A mixture of sodium cyanide and a metal sufite is made to react with acid so that there is 0.05-0.5 percent by weight of sulfur dioxide in the hydrocyanic acid collected therefrom. A stable water-white hydrocyanic acid is obtained.

WALTER, L. A., and McELVAIN, S. M. (249)

REDUCTION OF CYANIDES. Jour. Amer. Chem. Soc. 56: 1614-1616. 1934. [Abstract in Brit. Chem. Abs. 1934(A): 994. 1934.]

WARBURG, O., NEGELEIN, E., and HAAS, E. (250)

SPECTROSCOPIC DEMONSTRATION OF THE OXYGEN-TRANSFERRING ENZYME IN THE PRESENCE OF CYTOCHROME. Biochem. Ztschr. 266: 1-8. 1933. [In German. Abstract in Chem. Abs. 28: 791. 1934.]

WASER, E., and STÄHLI, M. (251)

INVESTIGATIONS OF TOBACCO SMOKE IV. Ztschr. Untersuch. Lebensmtl. 67: 280-284. 1934. [In German. Abstract in Chem. Abs. 28: 3522. 1934.]

The hydrocyanic acid content of the smoke ranges between 0.020 and 0.034 percent in the types of cigarette tobacco investigated, and based on the dry tobacco smoked. The values found are quite constant for the same type of cigarette and under similar conditions of investigation. The hydrocyanic acid content is independent of the nicotine content but increases with increased speed of smoking. The introduction of water or "Bonicot" liquid into the cigarettes had no measurable influence on the amount of hydrocyanic acid in the smoke. The amount of hydrocyanic acid found in cigarette smoke is so small as to be without direct danger to the smoker.

WATANABE, A. (252)

THE EFFECT OF POTASSIUM CYANIDE AND METHYLENE BLUE ON THE RESPIRATION OF GREEN ALGAE. A CONTRIBUTION TO THE PHYSIOLOGY OF ALGA. Acta Phytochim. 6: 315-335. 1932. [In German. Abstract in Biol. Abs. 8: 1408-1409. 1934.]

WEBSTER, R. L. (253)

INSECT TOLERANCE (FOR INSECTICIDES). Jour. Econ. Ent. 26: 1016-1021. 1933. [Abstract in Chem. Abs. 28: 5584. 1934.]

The acquired resistance of San Jose scale (Aspidiotus perniciosus) to lime-sulfur solution, of the red (Chrysomphalus aurentii) and the black (Saissettia oleae) scales to hydrocyanic acid and of strains of the codling moth (Carpocapsa pomonella) to lead arsenate are discussed.

WENDEL, WM. B. (254)

OXIDATION BY ERYTHROCYTES AND THE CATALYTIC INFLUENCE OF METHYLENE BLUE. II. METHEMOGLOBIN AND THE EFFECT OF CYANIDE. Jour. Biol. Chem. 102: 385-401. 1933. [Abstract in Chem. Abs. 28: 1066. 1934.]

Solutions of methemoglobin in the presence of normal dog erythrocytes or erythrocytes in which the pigment has been converted to methemoglobin by amyl nitrite are able to oxidize lactic acid to pyruvic acid, but the oxidation is inhibited by hydrocyanic acid. If, however, methylene blue is added, the oxidation is greatly increased, and the increase is not inhibited, or is even accelerated by hydrocyanic acid. The increased oxidation is therefore not due to methemoglobin (cf. Warburg and Christian, Chem. Abs. 26: 5976.). The rate of oxidation is proportional to the amount of methylene blue added at concentrations below 3.10^{-2} M. Further, since both hydrocyanic acid and semicarbazide accelerate the oxidation, while additional pyruvic acid inhibits it, the reaction is probably reversible, as it is in other biological systems (cf. Baumberger, Jurgensen, and Bardwell, Chem. Abs. 27: 5621, and Wurmser and DeBoe, Chem. Abs. 26: 5819).

WERTHEIMER, E. (255)

THE EFFECT OF BROMACETIC ACID AND HYDROCYANIC ACID ON FLAGELLAR AND CILIARY MOVEMENT. Pflüger's Arch. Physiol. 231: 155-168. 1932. [In German. Abstract in Chem. Abs. 28: 4488. 1934; also Physiol. Abs. 18: 406.]

Hydrocyanic acid inhibits the motility of guinea pig spermatozoa, but has no effect on the motility of Paramecium; the action on the spermatozoa is prevented by the addition of small concentrations of dextrose, whereas fructose, galactose, hexosemonophosphoric acid, dihydroxyacetone, methylglyoxal, pyruvic acid, and lactic acid are effective only in much higher concentrations.

WEST, W., and FARNSWORTH, M. (256)

VIBRATION SPECTRA AND STRUCTURE OF THE CYANOGEN HALIDES. Jour. Chem. Phys. 1: 402-405. 1933. [Abstract in Brit. Chem. Abs. 1934(A): 10. 1934.]

WHEELER, T. S. (257)

HYDROCYANIC ACID. U. S. Patent 1,934,610, issued Nov. 7, 1933; applied for Mar. 18, 1903; in Great Britain Mar. 27, 1929; assigned to Imperial Chemical Industries, Ltd. [Abstract in Chem. Abs. 28: 584. 1934.]

A gas containing a hydrocarbon such as methane or ethane together with more than one molecular proportion of ammonia for each atomic proportion of carbon is rapidly passed, at a temperature of at least 1150° through an unpacked reaction chamber under conditions (such as those of suitable "space velocity") which are unfavorable to decomposition of the reagents into their elements.

WINDER, C. V., WINDER, H. O., and GESELL, R. (258)

THE SEAT OF ACTION OF CYANIDE ON PULMONARY VENTILATION. Amer. Jour. Physiol. 105: 310-336. 1933. [Abstract in Biol. Abs. 8: 1679-1680. 1934.]

WIRTH, W., and LAMMERHIRT, F. G. (259)

DETOXICATION OF HYDROGEN CYANIDE. Biochem. Ztschr. 270: 455-459. 1934. [In German. Abstract in Brit. Chem. Abs. 1934(A): 805. 1934.]

Administration of sodium tetrathionate or sodium nitrite to an animal delays reaction to inspired hydrocyanic acid, and if the dose is sublethal assists in recovery, but if it is lethal, does not assist in keeping the animal alive.

WITTEK, H. (260)

CYANIDES AND CYANAMIDES. German Patent 588,761, issued Nov. 25, 1933; applied for Dec. 24, 1930. [In German. Abstract in Chem. Abs. 28: 2133. 1934.]

A furnace for forming cyanides or cyanamides from ammonia and univalent or bivalent metals is described.

WÖHLER, L., KRALL, E., and DORNHÖFER, O. (261)

CYANIDE AND FERROCYANIDE FROM CALCIUM CYANAMIDE. Angew Chem. 47: 733-734. 1934. [In German. Abstract in Brit. Chem. Abs. 1934(A): 1341. 1934.]

The technical conversion of calcium cyanamide into alkali cyanide can be effected economically only with the finely divided fresh dry product. Sodium carbonate not sodium chloride must be used with carbon, which is advantageously replaced by calcium carbide or aluminum carbide. Fusion with potassium carbonate and iron filings or preferably powdered ferric oxide effects quantitative conversion of calcium cyanamide into potassium ferrocyanide.

WOGLUM, R. S., LAFOLLETTE, J. R., LANDON, W. E., and LEWIS, H. C.

HANDBOOK OF CITRUS INSECT CONTROL FOR 1934. Calif. Fruit Growers Exch. Bull. 11, 29 pp. 1934. [Abstract in Rev. Appl. Ent. 22(A): 578. 1934.]

In fumigation with hydrocyanic acid it was found better to begin on the side of the grove sheltered from the wind, so as to prevent "protective stupefaction" of coccids by gas leaking from the tent.

WORTHLEY, H. N. (263)

CODLING MOTH SPRAYING EXPERIMENTS IN PENNSYLVANIA IN 1933. Jour. Econ. Ent. 27: 240-244. 1934. [Abstract in Rev. Appl. Ent. 22(A): 292. 1934.]

Cuprous cyanide, which probably possesses fungicidal as well as insecticidal properties, was tested as a substitute for lead arsenate. Although not highly effective at 2 pounds per 100 gallons it deserves further trial at higher concentrations with an adhesive.

YAGATA, M. (264)

THE ACTION OF POISONOUS GASES ON THE LIVER AND KIDNEY FUNCTION. Japan Jour. Gastroenterol. 6: 280-314. 1934. [In Japanese. Abstract in Chem. Abs. 28: 5533. 1934.]

Hydrocyanic acid and chlorine act more strongly on the kidneys than on the liver.

YAKUSHIJI, E. (265)

THE CATALASES AND THEIR ROLE IN PHOTOSYNTHESIS. Acta Phytochim. (Tokyo) 7: 93-115. 1933. [In German. Abstract in Biol. Abs. 8: 1405. 1934.]

YAMAMOTO, A. (266)

THE INFLUENCE OF CERTAIN POISONS ON THE CONSUMPTION RATE OF RESPIRATION DURING THE GROWTH OF FUNGUS. Acta Phytochim. 7: 65-92. 1933. [In German. Abstract in Biol. Abs. 8: 1409. 1934.]

YAOI, H., and KASAI, H. (267)

EFFECT OF SOME CHEMICAL FACTORS ON THE SURVIVAL OF PURIFIED VACCINE VIRUS. Jap. Jour. Expt. Med. 9: 619-635. 1931. [Abstract in Biol. Abs. 8: 151. 1934.]

Purified vaccine virus is found to be more resistant to potassium cyanide than any known organism.

ZANOTTI, V. (268)

THE ACTION OF HYDROCYANIC ACID ON THE ENZYME MIXTURES MALTIN AND PANCREATIN. Boll. Chim. Farm. 73: 524-525. 1934. [In Italian. Abstract in Chem. Abs. 28: 7270. 1934.]

Hydrocyanic acid destroys the saccharifying diastatic enzyme in maltin and pancreatin but has action on the proteolytic enzyme of pancreatin. The amount of enzyme destruction after a given time of exposure is directly proportional to the quantity of hydrocyanic acid used.

ZAPPI, E. V., and MANINI, A. (269)

RAPID IDENTIFICATION OF SILVER CYANIDE IN PRESENCE OF SILVER HALIDES. Anal. Asoc. Quim. Argentina 22: 21-23. 1934. [In Spanish. Abstract in Brit. Chem. Abs. 1934(A): 857. 1934.]